What tells you when...?

Find out what 35 industry professionals said when we asked them, "What tells you when a piece of work is complete?" ...

3dcreative

EDITORIAL

Well, we have hit issue 24, which on the outset doesn't seem like much but it does mean that we have now been making 3DCreative magazine for 2 years! During which time we have made a lot of changes to the style of the magazine, and we hope that we are still providing you with as much great content as possible. To put things in perspective, here is something that we didn't know two years ago that we know now: since 2005, scientists have discovered more than 50 new species of animals and plants on the Southeast Asian island of Borneo. These new members of the 'list of animals we previously didn't have a clue about', include a catfish with protruding teeth and suction cups on its belly that helps it stick to rocks. Go back for a second, there... A bucktooth, rock-climbing catfish? With suckers? So, us keeping this magazine going for another two years at this fantastic value for money, doesn't really seem that unlikely now, does it?! Anyway, with the inane ramblings of an Editor with mild brain radiation from these screens aside, we hope that you will continue to support us for as long as you can. I would also like to thank all of you who supported our plea to stop the 'pirates' (see cover image this month) copying our magazines. Our sister company 3DTotal.com will be exhibiting at Siggraph this year, so feel free to stop by and say "hi"! Ed & the 3DCreative Team.

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Contributing Artists

Every month, many creatives and artists around the world contribute to 3DCreative magazine. This is where you can read all about them. If you would like to be a part of 3DCreative or 2DArtist magazines, please contact: ben@zoopublishing.com

3D Environment Lighting

These wonderful people are responsible for creating our new 3D Environment Lighting Tutorial series for 3DS Max, Cinema 4D, Lightwave, Maya & Softimage XSi. Most of them have been with us since the Joan of Arc series and worked on the highly popular Tuc-Tuc series...

Luciano Iurino

Started back in 1994 with 3DStudio on MS-Dos as a Modeller/ Texture artist. In 2001 he co-founded PM Studios & still works there as Lead 3D Artist. Recently he has developed the videogame, ETROM – The Astral Essence. He also works freelance for different magazines, web-portals, GFX & videogame companies. He recently left the 3DS Max environment to move on to XSI.

iuri@pmstudios.it

Roman Kessler

Is a Freelance 3D Artist, in Germany. In '93 he made his 1st 3D model, using a shareware 3D software for DOS that was very limited. He got addicted & started with Lightwave in '97. Since 2005 he has worked professionally as a freelancer. He likes all 3D tasks equally, with little preference to modelling and texturing. Besides client-based work, he also works on personal animation projects.

www.dough-cgi.de
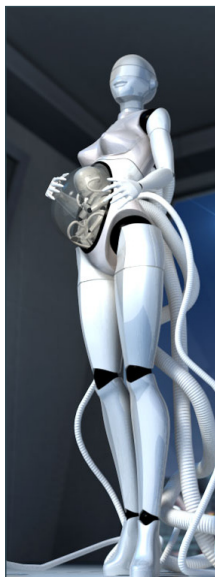
Niki Bartucci

Is a freelance 3D Modeller, in Italy. She started working in the field of Computer Graphics in 2000 as an Illustrator & Web Designer. In 2003, she started using 3D software such as C4D, & later 3DS Max. She has worked on ETROM - The Astral Essence, RPG video-game for PC, developed by PM Studios. She is currently working freelance & specialises in commercials.

niki@pikoandniki.com - www.pikoandniki.com
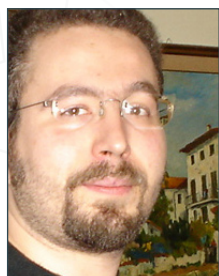
Giuseppe Guglielmucci

Is a freelance 3D Modeller/Animator. He began using computers with the epoch of the vic20, & Cinema 4D was his first 3D software. He started working in the field of CG in 1999, in commercial design. In 2003, he worked on ETROM - The Astral Essence, RPG video-game for PC, developed by PMstudios. He currently hopes to work in the video-games industry & develop his own game.

piko@pikoandniki.com - www.pikoandniki.com
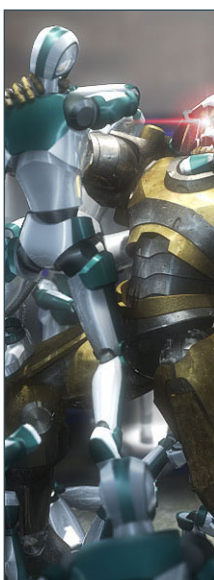
Would you Like to Contribute to 3DCreative or 2DArtist Magazine?

We are always looking for tutorial artists, gallery submissions, potential interviewees, Making Of writers, and more. For more information, send a link to your work here: warin@zoopublishing.com

3dcreative

ONNO VAN BRAAM

Is 25 years old and was born in the small town of Schellinkhout, in The Netherlands, back in 1982. He is currently living and working in the heart of Amsterdam, very close to the Dam. Since the beginning of 2005 he has been working as a freelancer on a number of small and large projects for an internationally orientated, but local, VFX company: PostPanic.

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onno@onnovanbraam.com

FLORIAN WILD

Has otherwise been known as Floze since kindergarten, even by his grandma. He started CG when he was eight, with DPaint and some very basic 2D animation software. He wanted to create fabulous worlds such as the ones he discovered in games like Monkey Island, LeChuck's Revenge. He started 3D when he was 15, and got into the industry at 18. He currently works as a buccaneer artist & TD.

mymail@floze.de - http://individual.floze.de/
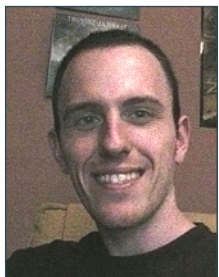
GEOFFREY CRAMM

Is a freelance 2D/3D Artist in Almere, The Netherlands. He recently finished his Media Technology studies, and is currently working as a freelance illustrator. He has been drawing all his life, and started working with 3DS Max somewhere in 2002. He hopes to start working as a part-time 3D animator at Artic Multimedia in Amsterdam, where he has completed his internship.

www.geoffreycramm.nl
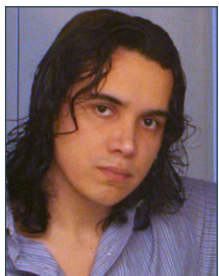
CESAR ALEJANDRO MONTERO

Is a 3D Artist & Computer Engineer, in Zapopan Jalisco, Mexico. He believes in a balance in life, and all of its aspects, and he appreciates his health above anything else. Cesar's career goal is to tell compelling stories using CG in feature films.
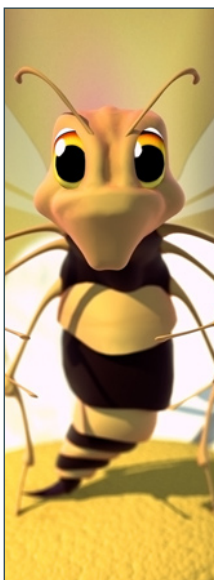
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Image by Carles Piles

"There is no education for 3D'ing here in the Netherlands. Not at a serious level at least. And even then, I probably wouldn't have tried it; I don't really believe in 'learning 3d' in school."

In this interview, Onno van Braam reveals a few facts about himself and the way in which he works...

ONNO VAN BRAAM

ONNO VAN BRAAM

You started 3D with 3DStudio Max v2.0. What were your early projects like?

Simple. Scenes built up from primitives alone, with simple modifiers such as Bend applied. The funny thing is that I actually still have most of the things I made from the beginning on a backup drive. I looked through them a couple of months ago and could still remember most of them.

You have stuck with 3DStudio Max since then. Have you ever considered any of the others?

Well 3DS Max has it's pros and cons, but you keep that when you switch to a new program, as they will just be different pros and different cons, but they'll still be there. Rhino 3D I have tried to learn a few times but, to be honest, NURBS are not the thing for me as they work very unintuitively, if you ask me. I like the indirect approach of poly-modelling with Turbo/MeshSmooth; it's easy to work with and very flexible, which I cannot say for NURBS. For what I do, 3DS Max is a great tool and is capable of producing the results I want (most of the time).

College or self-taught 3D'er?

Entirely self-taught. There is no education for 3D'ing here in the Netherlands. Not at a serious level at least. And even then, I probably wouldn't have tried it; I don't really believe in 'learning 3D' in school. Reading the manual is what I did a lot when I started, and reading tutorials online of course. Especially in the beginning, it is good to read as much as you can on all subjects you can find: modelling, texturing, simple animation - just to learn your way around the program and get an understanding of how 3D'ing works.

You currently work for PostPanic in Amsterdam. What's it like working there?

Yes, as a freelancer I do jobs for them. It is great to work for them: it's a five minute bicycle ride from my home and I usually start at 10:15, which is a very big plus for me. I am not really the morning type, to put it mildly. And the people

at PostPanic are all very, very good at what they do which leads to you wanting to work at that level too, and basically makes you reach the next level in the quality and speed of your work.

Does the environment in Amsterdam bring a more 'calm' atmosphere to the workplace?
Haha, no, I don't smoke...

You have created work for some big clients such as Mitsubishi, Sony. MTV and more. What kind of work do you really enjoy?
I'd have to say that working in a great team with inspiring people is one of the things I enjoy most when working for big clients. Apart from that, it's the exposure of your work, of course - the bigger the audience, the better. The feeling of seeing a commercial you made on TV for the first time is quite amazing. I feel that doing work for someone else (a client) is very different from doing work for yourself (personal), though. There is the pressure, deadlines, clients wanting things you don't agree with, etc. Those things you usually do not have when working on your own projects. I can handle the pressure, but I also think that I produce better work when I have complete freedom.

You are probably best known for your car visualization work, and have produced some amazing renders over the years. What is the secret to a great car render?

Probably not to be satisfied too soon. It takes a lot of testing, tweaking and trying to get the composition and render just the way you want it, in both your 3D application as well as in post-production. If you think you have to apologise or explain certain parts of your render when you show it to someone else, then it's no good. There can be no 'there's still this and this to fix' excuses. You have to think: I cannot make it any better than this; I did all I could; there is nothing that I can think of that can be improved.

You also give a lot back to the community in the form of free tutorials and eBooks. Do you think it's important for artists to give a little something back?

I wouldn't judge anyone for not giving away the techniques they learned or the models they made, but for me it is a very important aspect of 3D'ing. I have had such good times modelling, texturing, rendering, etc. throughout the whole 3D process. The satisfaction when a render works out the way you wanted to is a great feeling - a feeling that you can re-live every time

you see your own work, because you know how much time and effort went into it. It would be great if I could help other people achieve that same feeling, or to be able to help them get the skills they want to create what they want or get the job they aspired to.

Do you have one piece of advice for any aspiring visualization artists out there?
And create a whole generation of artists much better than me and lose my job? NEVER!
Well, maybe one tip: don't force yourself into becoming a 3D artist. Become one because you want to, not because you have to or because you think you'll become rich. Do it out of love for the pixels!

Thanks very much for talking to us and good luck for the future.
Thank you for this interview and good luck with the magazine!

Onno 'EVO' van Braam

For more work by this artist please visit:

www.onnovanbraam.com

Or: www.the-blueprints.com

Or contact them at:

onno@onnovanbraam.com

Interviewed By : Ben Barnes

"MY MAIN MOTIVATION IS USUALLY PLAYING WITH THE 4TH DIMENSION, SO I COULD SAY THAT TIME IS MY INSPIRATION."

CARLES PILES

Born in the same year that man first set foot on the moon, CG artist Carles Piles takes time out from his duties as a texture painter to chat with us about his work on Dear Anne and Dragon Hunters...

CARLES PILES

Hello Carles, could you introduce yourself to our readers, please?

I'm a CG artist from Valencia, Spain. I was born in the same year that man first put foot on the moon, so I'm currently almost 38 years old; married with two children. I was a professional musician and graphic designer before getting into 3D and it has been many years since 3D techniques caught my full attention.

Could you tell us a bit about your education, please?

My single, official education came from music school. Regarding graphics, I learnt everything myself. I had no real chance of learning CG graphics because, in those days, CG schools didn't exist in Spain and I had no money to pay for any of the courses. So for leaning the technical side, magazines where my main source of education, and later on the Internet arrived making it easier and cheaper to learn. As for art, I mostly learnt by observing the paintings of the Dutch, Italian and Spanish classic masters.

What first got you started in 3D?

It was more than 12 years ago when a friend of mine showed me software able to run on my 486 with 4 Mb of Ram using MS-Dos (3DStudio 3). I was very impressed by the "realism", so even if I didn't spend time too much in those first years, I was very curious about testing all the 3D software available (and there were not that many, by the way). Some years later, I started an insane self career focused mostly on natural light simulation. Global Illumination didn't exist at that time, so I had tonnes of fun doing that.

With the amount of resources available for training nowadays, it's very easy for artists coming into the field today to quickly pick up the latest 3D software. How did you find learning 3D back in the days when resources were very limited?

It was quite hard from the technical side because the best system was simply trial-and-error, which is very time consuming. Also, 3D packages are currently quite similar, but a decade ago we found huge differences between packages, and so you could spend a couple hours trying to find a particular feature (navigating on completely different interfaces) and realising later that it didn't exist in the program you were trying to learn... So learning was slow and chaotic. On the other hand, in my case, the artistic side was very funny. Most packages didn't support advanced rendering features such as GI, so I had tonnes of fun trying to "paint with lights" to emulate colour bleeding and global lighting and shadows, so it was a very creative training process. Currently it's really easy to create a photo-realistic scene, but also a lot of control and creativity is involved in such an automated process. I think it was not a bad time, just very different.

You worked on Dear Anne with a host of other talented artists. Could you tell us what sort of experiences you gathered from your time there? Indeed, tonnes and tonnes of experience was gathered in almost three years of working there. Of course, I learnt a lot on the technical side and production itself since I was deeply involved in that project (I did the visual research and

database creation for 6 months, supervised the environment team for about 1.5 years, and worked as a shading/lighting artist and art director for more than one year), but my memories bring me more of a feeling of high motivation from being surrounded by those artists, and especially nice moments from the human side of things.

With the amount of work that must have gone into Dear Anne, were you a bit upset to find out that the project was cancelled?
Well, "a bit upset" may be not be the most appropriate expression to define my feeling - it was much worse. I got into a deep depression and an intense anxiety crisis. Suddenly (it was the worst thing - no time for planning anything),

I saw how the universe in which you've worked night and day for three years, pass away forever. I had to move back to another country with hundreds of objects, my children had to leave their Italian school unfinished, and my wife and I had to leave friends and memories with no time for thinking about what had happened... It was really hard in all aspects, not only the project itself, but... yes, losing the project was the hardest part to me. Everybody expected a big delay in the film release, but it was never expected that it would be left to die.

You're currently working on an animated film called Dragon Hunters; could you tell us a bit about this film and also your role in the creation of it?

Dragon Hunters is a 3D animated movie targeting family audiences. It's a prequel to the "Dragon Hunters" 2D series. It's a fantastic tale where everything is being destroyed by dragons in a world made of floating islands. Our main heroes have to destroy the villains to bring back order again. It's a film full of emotion and nice visuals. I think the viewers will enjoy a lot from this story, especially children. Regarding my role, it's a more relaxed job for me since I'm working just as a texture painter with my good friend and member of my old team, Juan Siquier, without those kinds of responsibilities that make you get up excited in the middle of the night. So even if work is intense sometimes, I can finally get some sleep. Again, human experience has been very nice within the "Dragons Team", and the rest of the people at Luxanimation. The rest of the production takes place in France (Futurikon, Mac Guff Ligne) and Germany (Trixter).

After Dragon Hunters, where do you think your career path will take you?

Sincerely, I have no idea. I have had several proposals out of Europe, but I've already rejected some and still have not decided about the others. I would really like to work on the next project at Luxanimation (just a pre-project now), which fits even better to my personal style since

it combines classical architecture with futuristic times, which is a really huge motivation for me, but at the moment I have just an oral agreement about that possible project so nothing is confirmed yet. I would prefer to find a job in Europe so I can easily move with my family, but I would especially like to work in the animation film industry, and Europe is not exactly prolific in that field, so... who knows. Another big project I have in mind is the creation of a pre-project for a personal feature film, "The Noah's Ship", a cartoon-style futuristic film. I've already started planning something with some friends, so we have a copyrighted synopsis and a few concepts, but at the moment it is just a dream and we don't trust at all in finding investors - even if the project is being created with the best cost/quality relationship - because so far we have not the right contacts to make it possible. Anyway, it's a very nice opportunity so I'll try to spend a while on it. If we're lucky with a few co-producers we could "The Noah's Ship" as the real thing, so even if it is not a priority (earning a life is a must) let's try to see what happens... At the moment, a couple months holiday would be well appreciated, too.
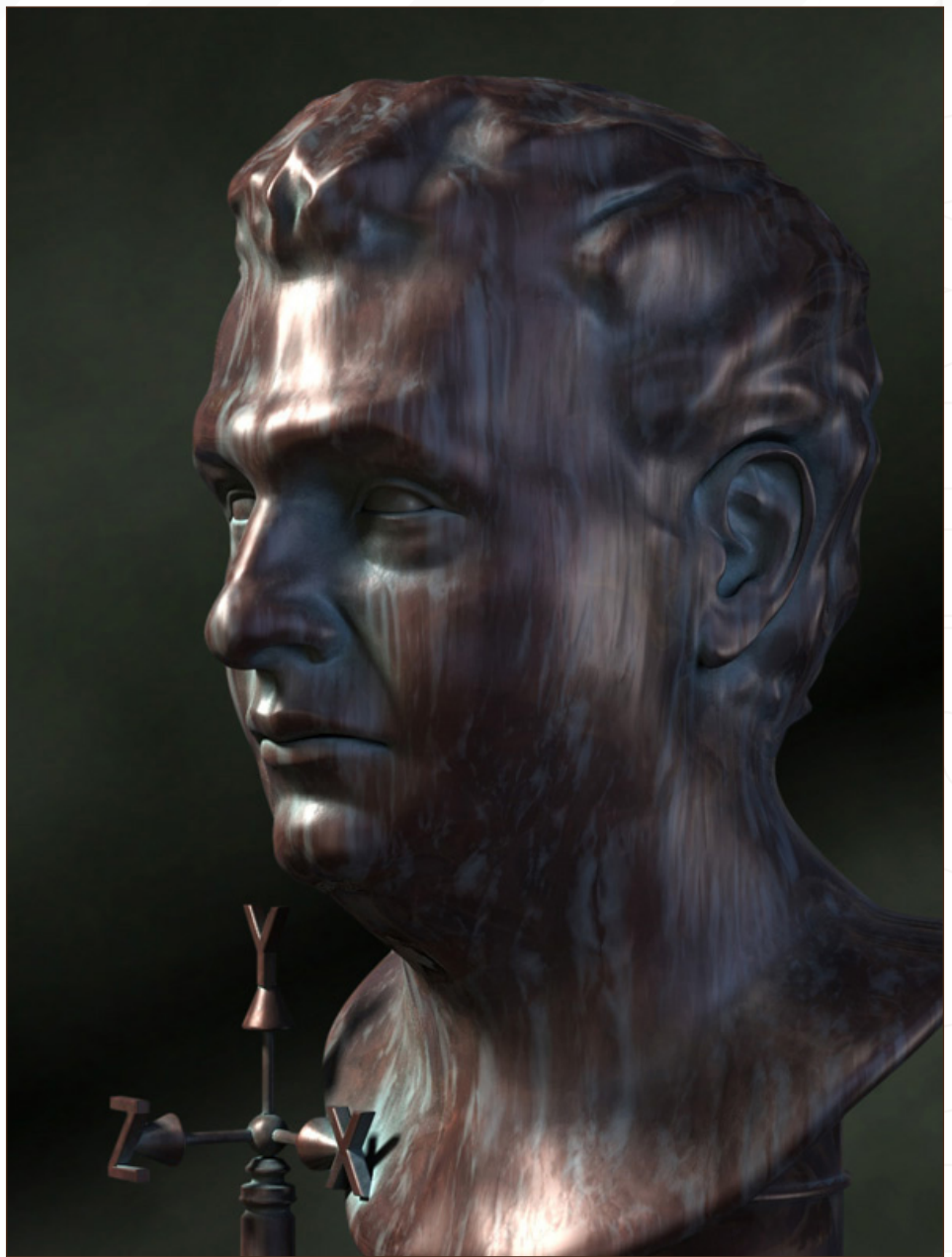
What sort of things inspire you when you create your personal artwork?
Normally, it doesn't matter what the subject is, just the beauty of it. My main motivation is usually playing with the 4th dimension, so I could say that TIME is my inspiration. CG allows us to travel in time, so my work is always involved in remote or future times, instead of the current time.

What sort of things do you do to relax away from the computer screen?
That's a hard question, because I haven't had time away from the screen since more than a decade. Sometimes I have a few hours at the weekend which I spend with my family and watch films or science documentaries. A couple of years ago I had some time to find myself

again with traditional media (I hadn't done any non-digital drawing for more than 20 years) and also, since about a year ago, I re-found a hobby which was a passion of mine since a child: astronomy. I bought a couple telescopes and, if the weather is good enough, I go out and enjoy aiming at some celestial objects and putting my eye to the telescope...

Well it has been a pleasure getting to know you Carles, but I have one more question before we finish: what has been the most constructive piece of advice your have received or given?
Thanks Chris, it has been a pleasure, too. I think there are three main points to be considered by any CG artists, which are as follows:
Inspiration and motivation. See what there is out there and ask yourself if you can reach

the same (in my case by observing the classic painters). **Be patient.** Computer graphics is not a career you can do in couple months; it's very time consuming and involves plenty of technical frustrations. **Work hard.** Experience cannot be transferred between people. Even with the training we can find today, personal experience is a must that everyone needs to live. As hard as you work is as much experience you get - it's that simple.

CARLES PILES

For more work by this artist please visit:
www.carlespiles.com
Or contact them at:
carles@carlespiles.com
Interviewed by: Chris Perrins

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"Getting to spend my day creating peformances and bringing characters to life is so incredibly awesome, and I can't believe I get to work on such a cool project straight out of school. I'm so glad I had the opportunity to learn character animation in such a challenging and supportive environment."

- Aja Bogdanoff
Animation Mentor Graduate
Blue Sky Studios

"There is no better motivator than knowing that your work can be seen by more than 600 people each week, including some of the best animators in the industry. This, paired with the contagious enthusiasm of my classmates, the mentors and the Animation Mentor staff pushed me to always do my best work!"

- Mike Stern
Animation Mentor Graduate
DreamWorks Feature Animation

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Alex is a very busy man: full-time Senior Character Artist for an upcoming 3D movie, freelance Character Modeller, part of the ZBrush beta team, and the list goes on. Alex tells us all about the fine-tuned, efficient working methods that give him just about enough free time to answer our questions...

ALEX HUGUET

ALEX HUGUET

I guess you are best described as an 'organic 3D modeller'. What has led you into this field and how do you currently make a living doing this work?

Well, I started by modelling a bit of everything from spaceships to buildings to characters. I started doing 3D as a hobby and I was always modelling stuff... one thing then led to another and I suddenly started working as a modeller for a little company in Barcelona. After that I got a job in the UK where I started modelling environments and characters. What I like the most are characters, so I guess this is why I'm

Alex Huguet Metamesh 2005

best known, if I'm known at all! Actually, I work as a Senior Character Artist for Ilion Animation on a 3D movie, and I also work freelance as a character modeller...

Can you tell us a little bit about this 3D movie you are working on?

Sure! We are working on a 3D animated film which is hopefully going to be great fun and very high quality. There's a lot of effort being made by many people on this project, and there are a lot of hopes to create a solid 3D animation studio here in Spain. I can say that, right now, the quality that we are getting is set very high and the technology being developed within the studio is also great! The movie should be released in 2009, and you can visit **www.ilion.com** to see some of the stuff being done over there!

ALEX HUGUET METAMESH 2005

I know you use a considerable amount of ZBrush within your creations, so what do you find best about this software and what enhancements has the new v3 brought to your workflow?

ZBrush has brought to modelling a new way of working, where you can nearly sketch more than you model, which makes it fairly quick to try out different designs for your characters. As an example, I had to create an alien for a freelance project, and the guys didn't give me any references because they wanted to see different designs, so it was quite simple and cool to sketch different faces in ZBrush very quickly... After two days they knew what they wanted by seeing all the different models! (See images Alien 1 and Alien 2). Version 3 is just great; it's very powerful and allows you to use many more polygons than before! Also, the ability to use more than one object and the transpose are just great! That allows me to spend more time modelling and less time exporting to Max to move, pose or fix some things.

Sketching concepts in 3D is something new to me! I can imagine your employers loved this; is it an alternative method you would recommend for others as opposed to traditional concept drawing?

It is a great method for me at least: it is fun, very creative and very fast! I don't think that it is a totally alternative method to traditional concept drawing but I think they work together very well since you can sketch something on paper and straight away you can start sketching it in 3D and see how it works! I have to say that we don't use ZBrush or any other sculpting packages here at work, since the models that we do are
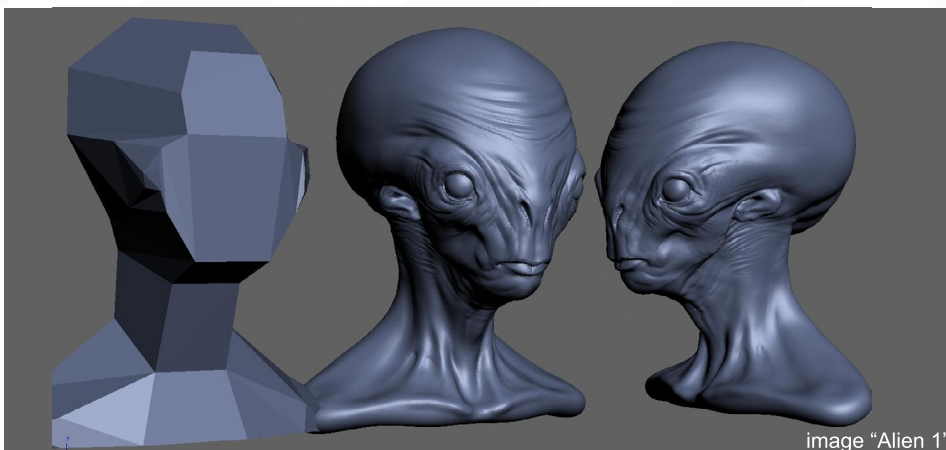

image "Alien 1"

image "Alien 2"

quite cartoon-ish so we don't need to use this kind of software, but I'd love to add it to our pipeline!

What other software do you regularly use and how does this plug into your workflow?

I also use Mudbox, Maya, 3DS Max and, of course, V-Ray! I just find it to be so powerful and so good with displacement maps! Also, Photoshop and Bodypaint for texturing are both great and all of this software are OBJ compatible so they fit together quite well (for me at least...).

It sounds like your characters get exported and imported many times before the final render. Which software do you find has made this easiest and which do you think still has room for improvement?

Hmmm, I don't think there is a perfect, unique software yet, and most of the time I see myself using 3DS Max, ZBrush, Mudbox and Bodypaint. Fortunately for modellers, it is quite easy to import/export between different packages since OBJ is quite a standard and strong format, so it's easy to import/export geometry to keep working on it in different packages. But I guess that just works with modelling. At this point, I'm pleased with all of the software that I use.

Candy Girl

Do you have any plans for future personal projects?

Hmmm, not at the moment - I just don't have the time. I just keep learning and modelling characters whenever I have time for it! In a way, I think my mind is always busy imagining characters and cool projects to do with them, but at the end of the day there just isn't enough time...

Can you tell us a little about your latest piece, 'Candy Girl'? Where did the design come from? How long did she take to create? What is your self criticism about the final render?

I did that as a freelance for the Pixologic guys; they wanted me to create a model and a tutorial for it, but they wanted a girl instead of the common monsters/aliens/wrinkles/bumpy characters to show that ZBrush can be used for other kind of characters too... The design was a mix between my own ideas and the ideas of an amazing artist and a good friend of mine, Julian Romero (he should publish a book with all his illustrations/designs - just crazy stuff!). I'm not

really sure about how long it took to create; it was crazy at that moment because I had to work full-time plus finish some other things all at the same time, so I was jumping from one thing to another!. About the final render, well, I'm not really satisfied... I would have liked to have fixed some parts here and there, but there just wasn't the time to do so and I had to leave it like that!

Well the image looks fantastic and is a great advert for ZBrush 3. Is the tutorial available online, too?

Thanks, very appreciated! Sure it is, I think it has been added to the ZBrush 3.0 PDF Practical guide and also as an online tutorial, which can be found either here http://www. zbrush.info/docs/index.php/Downloads or here http://www.zbrush.info/docs/index.php/Tutorial:_ Pinup#Basic_Shape_with_ZSpheres.

I just checked it out: looks awesome! I recommend this free 'pdf practical guide' to anyone who is even remotely considering ZBrush in the future. Alex's tutorial can be found on page 287. Thanks again Alex and all the best for the future!

www.metamesh3d.com WIP
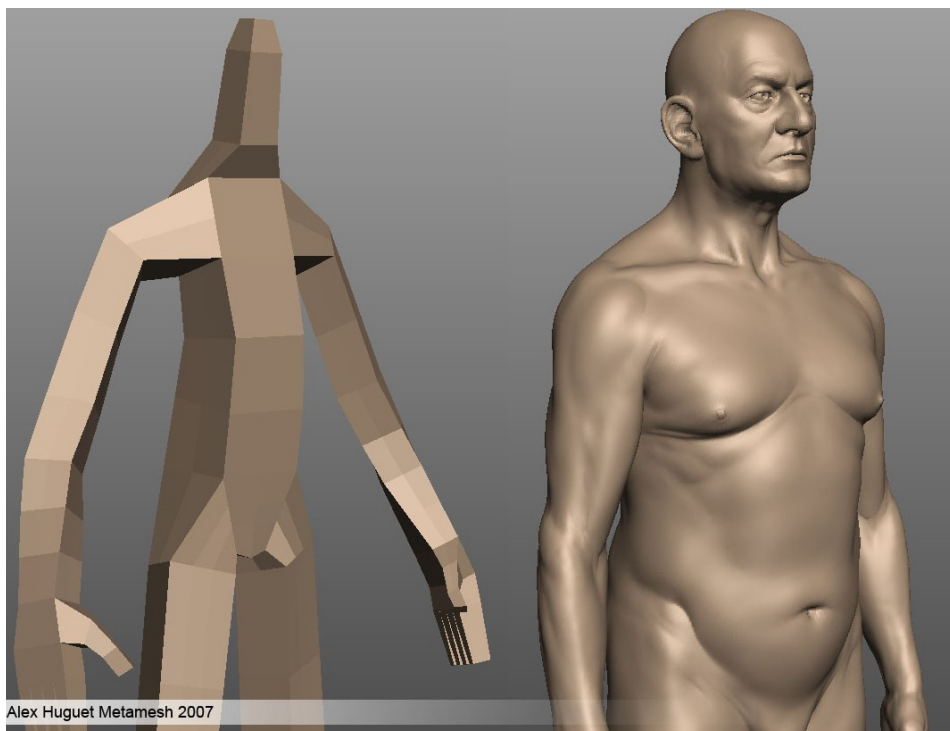
Alex Huguet Metamesh 2007

ALEX HUGUET

For more work by this artist please visit:

www.metamesh3d.com

Or contact them at:

metamesh@gmail.com

Interviewed by: Tom Greenway

ATTIK AND SCION

In June 2007, together with Scion, global creative and brand-engineering agency ATTIK (www.attik.com) detailed their multifaceted marketing campaign promoting the distinctively aggressive xD five-door urban vehicle, the newest model from Scion. The campaign's first elements were launched in June 2007, and new elements continued over the following months.

In close cooperation with the Scion marketing group, ATTIK's creative team, under the direction of co-founder and group creative director Simon Needham, developed the new xD campaign. The new creative continues Scion's legacy of reaching urban trendleaders with innovative entertainment highlighting the customisability of the brand's models.
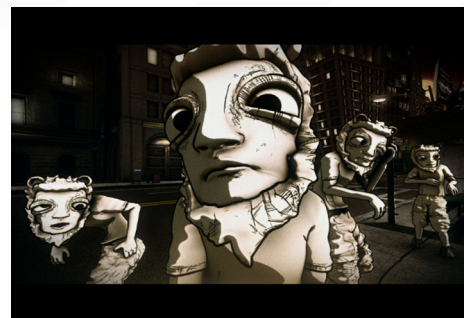
"Because the xD is brand new, we're establishing its attitude and identity," Needham began. "Everything in this campaign conveys the message that the character of the xD is a little bad-ass. We use a contemporary animation style, and some very unique elements, to spin a narrative in a way that we feel is bound to entertain our target audience and bring smiles to their faces - driving interest in this model and gaining even more brand recognition for Scion." The Little Deviant campaign uses an array of

Fall with the herd.

LittleDeviant.com

innovative elements to convey a sensational narrative to underscore the xD's non-conformist personality. These facets include a cinema spot that debuted in key markets on June 15, the www.LittleDeviant.com interactive website that launched the same day, a pop-up Spectacular print ad appearing in select July print magazines, a banner campaign and other guerilla activities which kicked-off in early July. In the storyline, the xD's virtual accomplices - a number of uniquely monstrous little Deviant characters - torment "Sheeple," conformist clones who paint the world and its inhabitants a dull grey. The xD itself unleashes Deviants from underground, and through the campaign's website, visitors can join the mischievous gremlins in customisation, all in the spirit of replacing dreary compliance with vibrant creativity. Promotional elements fuelled street teams' activities in July 2007, including custom-published Deviant comic books, die-cut hanging Deviant characters, wildpostings, missing Sheeple posters and other branded merchandise. Online at **www.LittleDeviant.com**,

"The Book of Deviants" is introduced using the same pop-up style of the campaign's Spectacular print ad. Visitors are invited to play along in an interactive adventure to help the deviants take back the city from the Sheeple's boredom and conformity. Each of these elements feature character illustrations commissioned by ATTIK from emerging artist Dave Correia. The campaign's launch spot, an animated:60 in-cinema ad entitled "Fable of the Deviants," was conceived by ATTIK's Needham, creative director Wayne Hanson, art director Greg Coffin and copywriter Mike Brenner. Working with ATTIK's senior producer Michele Morris and producer Jay Cortez, the team at

bicoastal design/production studio Shilo brought the spot to life. Featuring original music from bicoastal Face The Music, the spot's voiceover uses metred rhyme to accompany the stunning visuals and music in introducing the Deviants and the xD, as well as the Sheeple and the plot against them. Complete credits for "Fable" are available upon request.

"Scion is launching a new car in the compact car segment, where the majority of the small cars that are out there are marketed in terms of them being fun, cheeky, cute and that sort of stuff," Needham explained. "In typical Scion form, we tend to go against the grain and be

more irreverent; we don't mind being bad. The whole thing is just about establishing the car as a little deviant, and we want to bring out the deviant or naughty side of our audience." Having earned Scion's creative duties in 2002, the rapidly growing, youth-focused agency has expanded its capabilities exponentially, both in the U.S. and abroad. ATTIK's project team for the campaign also includes account director Charlie Adams, senior account manager Andy Giles and VP interactive media Justin Smith. ZenithOptimedia handles media on the Scion account.

ABOUT ATTIK

ATTIK (www.attik.com) is a global creative and brand-engineering agency committed to designing extraordinary creative experiences that inspire consumers through compelling communications. ATTIK's strategic planning, design, advertising, production, client service and youth research expertise have driven success across an array of consumer product and service categories. ATTIK articulates corporate brand strategy, designs creative solutions for advertising, below-the-line and online media, ensuring target audiences are vitally connected to every facet of its clients' brands. For inquiries in the eastern U.S., please call William Travis at 212-334-6401. In the western U.S., please contact Oliver Ralph at 415-989-6401, and in Europe, please call James Sommerville at +44 (0) 113 2021530.

ABOUT SCION

Scion is the newest line of vehicles from Toyota Motor Sales (TMS), U.S.A., Inc. Developed with a new generation of youthful buyers in mind, Scion's mission is to provide distinctive products, the opportunity to personalise, and an innovative, consumer-driven process at the retail level. The Scion brand features three ground-breaking models: the xD, a subcompact five-door; the xB, an urban utility vehicle with an iconic shape; and the tC sports coupe. For more information, visit www.Scion.com.

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James@attik.com

http://www.darnellworks.com/attik/images/ld-fable.mov - Movie
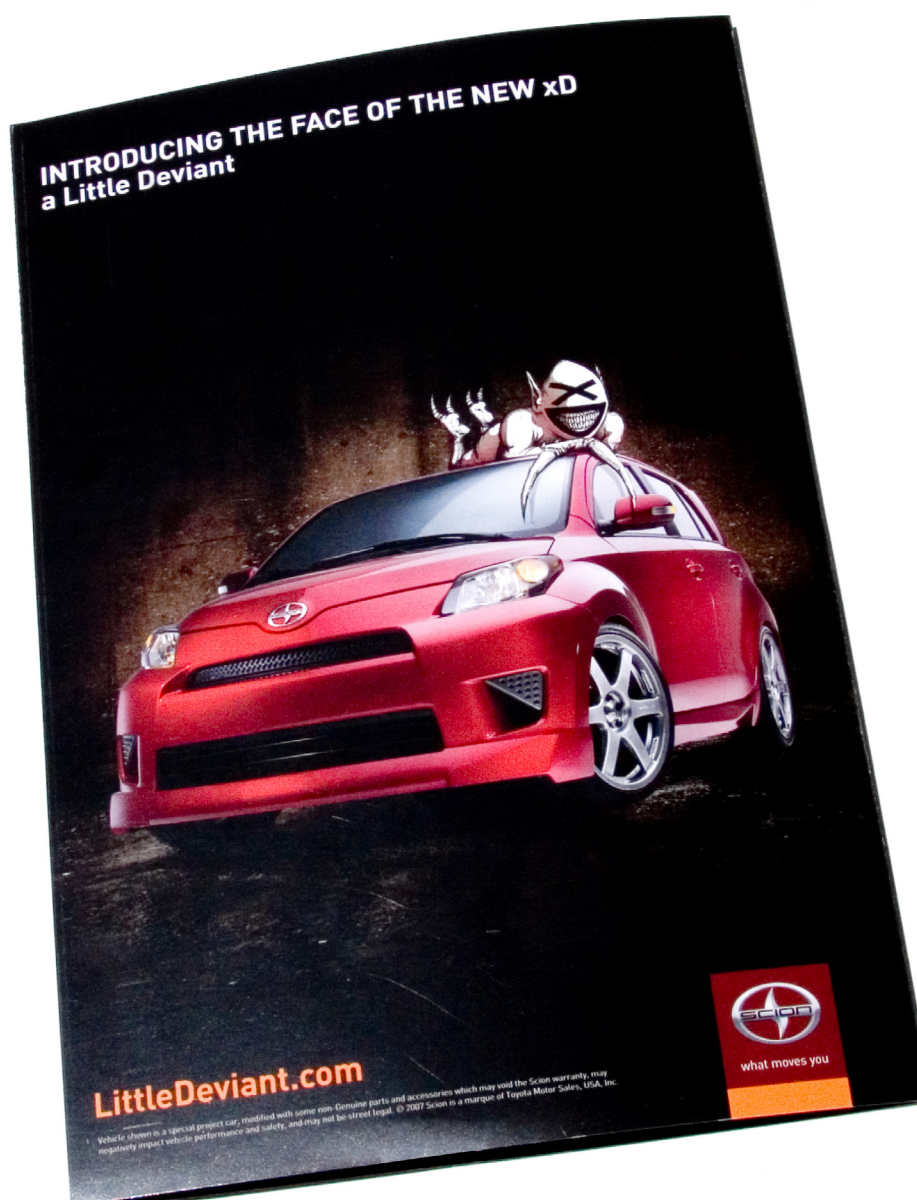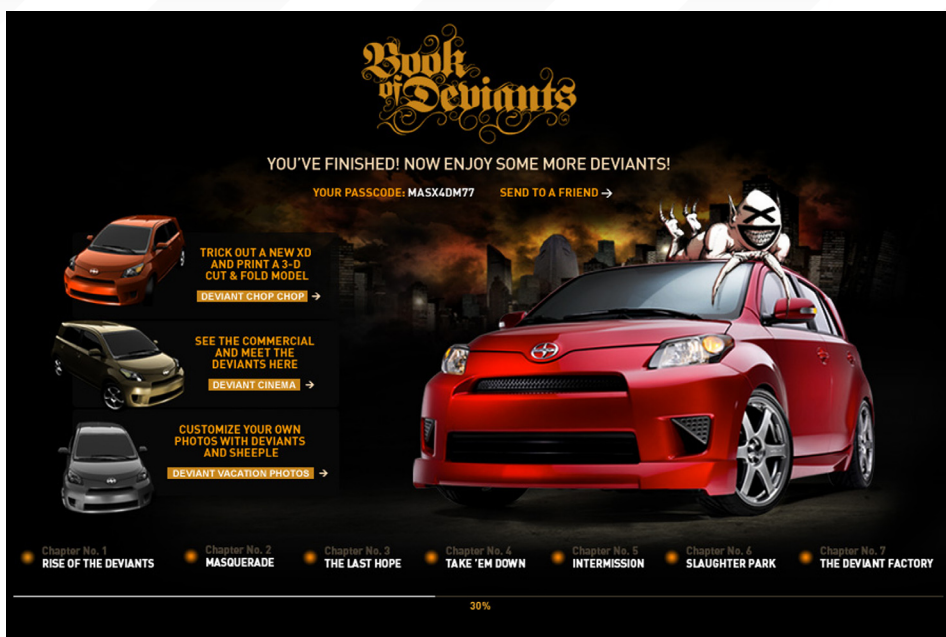
Ice Plane image supplied by Saddington & Baynes CGI. Photography by Darran Rees.
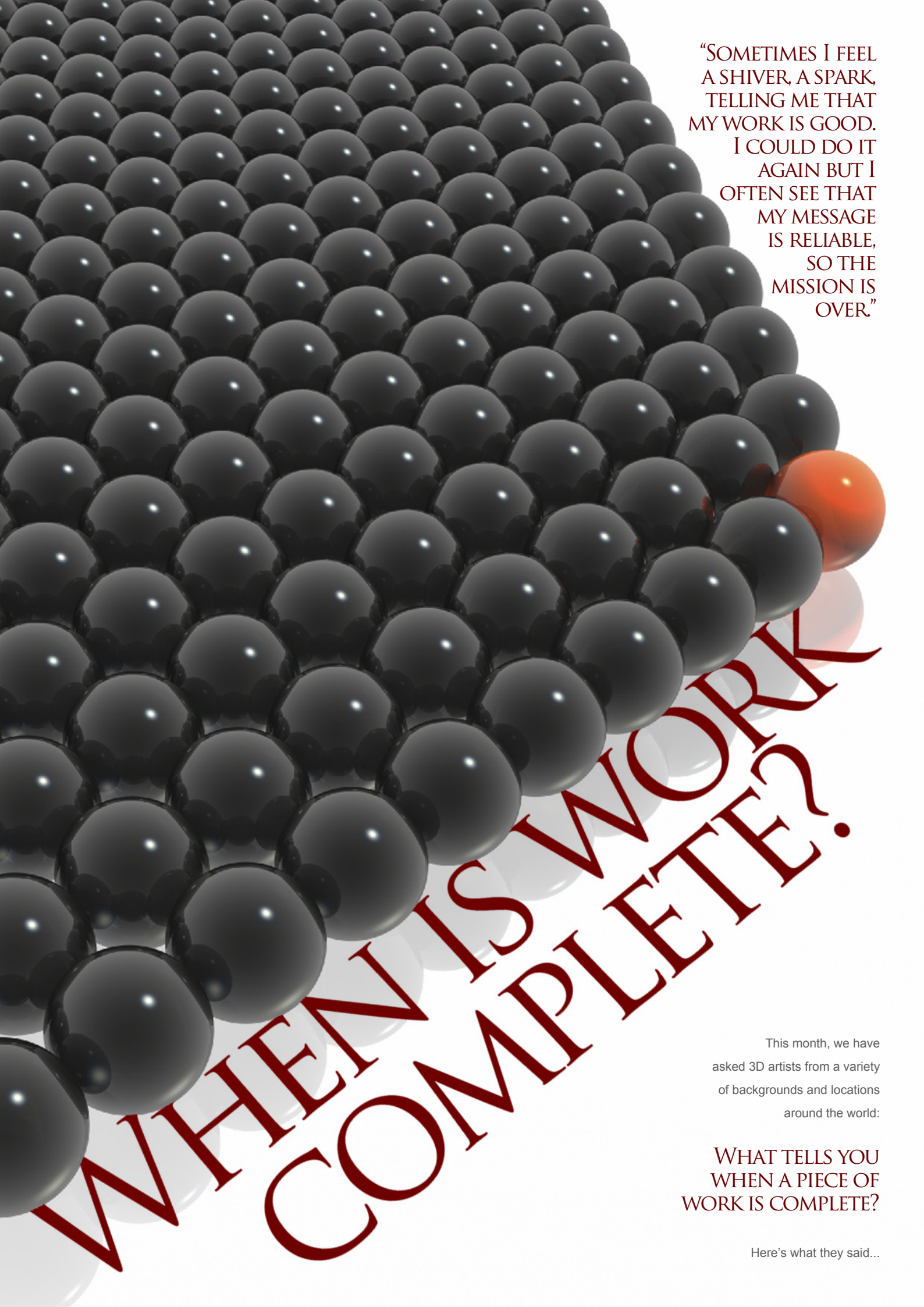
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"Sometimes I feel a shiver, a spark, telling me that my work is good. I could do it again but I often see that my message is reliable, so the mission is over."

WHEN IS WORK COMPLETE?

This month, we have asked 3D artists from a variety of backgrounds and locations around the world:

What tells you when a piece of work is complete?

Here's what they said...

WHEN IS WORK COMPLETE?

Work By: Anders Lejczak

ANDERS LEJCZAK 2006, WWW.COLACOLA.SE

ADRIAN TIBA

System Engineer, SC Infologic, Oradea, Romania.

"A piece of work is complete when all the modelling, texturing and lighting is done."

ALI ISMAIL

Digital Artist, Lucasfilm Animation, Singapore.

"When I know that if I kept working on it more I would cause my self some serious repetitive strain injury!"

ANDERS LEJCZAK

Project Manager, Framfab, Malmoe, Sweden.

"When my mind is focused on the next piece then the previous one is finished."

ANDRÉ HOLZMEISTER

"Some works are never really finished. But the deadline is the key for any commercial work. For personal projects, well, I believe it is done when you feel it communicates the intended message in a beautiful and competent way. I believe that when you start to figure out what the next project will be, it is the time to make final adjustments to the work you are involved in now."

ANDRE KUTSCHERAUER

3D Designer, Studio Messslinger Gmbh, Munich, Germany.

"The initial enthusiasm of the next idea forces me often to finish the current one."

ANNA CELAREK

Student, Vienna.

"When I see that I can't make it better any more. It's not perfect, but it's the best I can do."

BOGDAN

"I am very pragmatic when it's about this aspect: always when the deadline is arriving and/or the customer is happy. Of course, in 3D you have many stages to complete until you get the final result. You must finish the concept arts, storyboard, pre-production, animations, modelling, UV's, texturing, rigging, layout, animation, lights, render, post-production. That's quite a pipeline to take care of. So if you are aware of any of these stages and you work on a schedule or production chart then everything must be done until a certain deadline arrives. One way to solve this issue is meeting between team leaders and/or meeting with the customer. This depends on the type of project you are working on. Even so, without any doubt, for every project done until now, if I was given "just a little bit" more time the result would have been better. For almost three years I was in

Work By: Tiziano Fioriti

charge of a lighting and rendering department and every single project came to me with a big, or small, delay. So I had to make lots of shortcuts in order to finish the projects on time. I had to re-think the shadows, the ray trace and the render engine, or even had to use more computers for the rendering process. In my opinion, and after my experience, the answer is that when the almighty deadline arrives and the one who's paying is happy, then the work is complete. If we're talking about a personal project, and unfortunately I have to say I don't have too much time for such things lately, then the work is never ending. I mean, OK, it's over but..."

Cesar Alejandro Montero Orozco

CG Artist & Freelancer, Digi-Guys, London, UK & Mexico.

"Nothing is complete unless you set a goal for it. If you attain the goal, then it is finished. Personal pieces for which you don't set a goal will never be finished. Pieces for clients who do have a goal in mind are therefore finished once the

goal is attained. If you don't set a goal for your pieces you will become constantly frustrated and depressed. This could truncate your desire of becoming an artist."

Dana Dorian

Director, Axis Animation, Glasgow, UK

When you run out of time, or money. Very rarely do you get an opportunity to finish something completely."

Daniel Vijoi

When there is nothing to bother me in the artwork shows me that the end is close. When the composition seems perfect, the story shows what you want, colours are tuned, and such, you take a good look at the artwork from a distance and see if something does not match."

David Revoy

"I feel it naturally, and I'm sure it comes by itself naturally."

Eric Provan

3D Modeler, Sony Pictures Imageworks, USA.

"When I can't fit any more soda cans on my desk. When it comes to personal work, once I feel like I can't learn much more from the project I usually move on."

Eugenio Garcia

3D illustrator & Animator, GrupoW, Saltillo, México.

"When I feel that all elements are balanced; my mind, colour, shapes, refinement. In fewer words, when I'm happy with the quality."

Gustavo Groppo

General 3D Artist, Mamute Mídia, São Paulo, Brazil.

"I consider a piece as complete when all the things that can transmit something, whether simple or complex, work so that you can understand why."

Hasraf Dulull

Visual effects artist, The Moving Picture Company, London Soho.

"Well, if I had it my way then no work of mine is ever complete, but I guess you just have to draw

Work By: Anna Celarek

the line somewhere and say this is it; you have fulfilled your brief and more importantly it looks good! And your client is happy."

JURE ZAGORICNIK
3D Freelancer & Web Developer, www.3dg.si, Kamnik, Slovenia.
"When I am satisfied with it. Or when I just can't look at it anymore."

LIAM KEMP
"When all my notes are crossed out, and then when my 'correction' compulsions subside."

MATHIAS KOEHLER
"Personal work: It never is, I simply loose interest in it at a certain point. Commercial work: When the client likes it."

MATT WESTRUP
"With CG, I don't thing anything can be classed as 'finished'. If a client gives a job the thumbs up then that could be considered finished."

MICHAEL SEIDL
3D Artist, Modeling & Rendering, www.michaelseidl.com, Vienna, Austria.
"I always try to add as much detail as possible and do the shader work as accurately as possible. My problem is that my eyes get "used" to my work, so it is pretty hard for me to spot my errors. Therefore I always show my parents my work because they've never created 3D work and they spot unrealistic parts of an image in seconds."

NEIL MACCORMACK
Freelance 3d artist, Bearfootfilms, Geneva , Switzerland.
"Normally other people."

NICOLAS COLLINGS
"Satisfaction and happiness."

PEDRO MENDEZ
"Sometimes your artwork is never complete, but when you get a smile - when you see your art and always smile - then you have finished your piece. It's just something you feel."

PETE SUSSI
"When I can stare it for a few days and not want to tweak it anymore."

PETER SANITRA

3D Artist, imagesFX, Prague, Czech Republic.

"When I have the feeling that I've done good work, and people will be impressed, or the client satisfied."

PETRA STEFANKOVA

"Everything is well balanced, technically finalised."

RICH DIAMANT

"When I'm sick of working on it any longer! But seriously, that's a hard question to answer. I think you can always look back and want to change certain aspects of any piece. I tend to get to a point where I realise it's the best I can do in the time I've put in. I think most artists want to just move on to the next piece anyway. That's how you tend to get better. You realise mistakes you've made in previous pieces and can in turn make your next piece quicker and better."

SEAN DUNDERDALE

"The deadline."

SORIN RADU

"When everything is perfect and I believe that there is nothing more to add. I correct all the mistakes then the work is finished - I have reached my goal."

STEPAN (O)NE GRAKOV

"When I have nothing to add (change) for some time; when everything takes its place and I can see that the image on the monitor matches the one in my head. It's only my feeling. I also show my work to people - I respect their critiques (not all of them are pros in CG)."

SVEN RABE

3D Artist, Germany.

"Speaking for personal work where you have of course much more freedom and time, I always try to get a fresh look of my work by taking a break for some time during the process. This

Work By: Sean Dunderdale

Work By: Micheal Seidl

helps a lot to get a new impression and a better feeling for your work. If then still everything looks good to me, I call it finished and move on to something new."

TIZIANO FIORITI

Freelance 3D Artist & Digital Matte Painter, Italy.

"Either way it doesn't exist as a final form. However, sometimes I feel a shiver, a spark telling me that my work is good. I could do it again but I often see that my message is reliable, so the mission is over."

TYCANE

3D Developer & Designer, NDG, Amsterdam.

"You know, I don't know really. I, myself, have a big problem with this. Extreme perfectionism is a family trait and I haven't yet learnt when to stop on a piece. So, like many of the CG people

who know me well, will be able to tell you that I have a lot more unfinished projects than finished ones, mainly because I am never really satisfied and will keep working on a piece endlessly. (This panel doesn't exactly align, that reflection isn't 100% smooth, etc.) Professionally, the thing that tells me to stop is the deadline."

VOJISLAV MILANOVIC

General 3D Artist, Animated Biomedical Productions, Sydney, Australia.

"It's never finished, only abandoned. One just has to move on, otherwise he will work on the same piece all its life."

ZDENEK URBÁNEK

Student,, Liberec city, Czech Republic.

"When I have an idea and I start making models, I can never wait to see the whole project

complete. It is good to see. First or secondly, I usually have a new idea for reform, and I do a lot of V.I.P renders and ask what everyone else thinks. But I think the biggest problem for me is, when I work on a project, I have a new idea for a next project, and sometimes I start new projects before I have even finished the first one."

NEXT ISSUE:

Join us next month when we will ask artists:

"IF YOU COULD CHOOSE A 'DREAM' PROJECT TO WORK ON, WHAT WOULD IT BE, AND WHY?"

Article Compiled by : **Ben Barnes**

Stylised Animal challenge

Monkey

In Association with **CONCEPTART**.ORG **THREEDY FORUMS**

Stylised Animal Challenge

Monkey

THE CHALLENGE

Welcome to the Stylised Animal Monthly Challenge. Each month we will select an animal and post some images in the Forum Thread as reference. All you have to do is to create a 3D image of this creature in a stylised/abstract/cartoon style, whilst keeping your creature instantly recognisable. We wanted to publish some content in 3DCreative Magazine on how to create stylised animals, such as you see in the many feature films and cartoon galleries. We thought this regular competition might bring in just the images / Making Ofs that we need, whilst giving away great prizes and exposure. This month's animal was **Monkey**. Here you can see the top five placed entries, as voted for by the public...
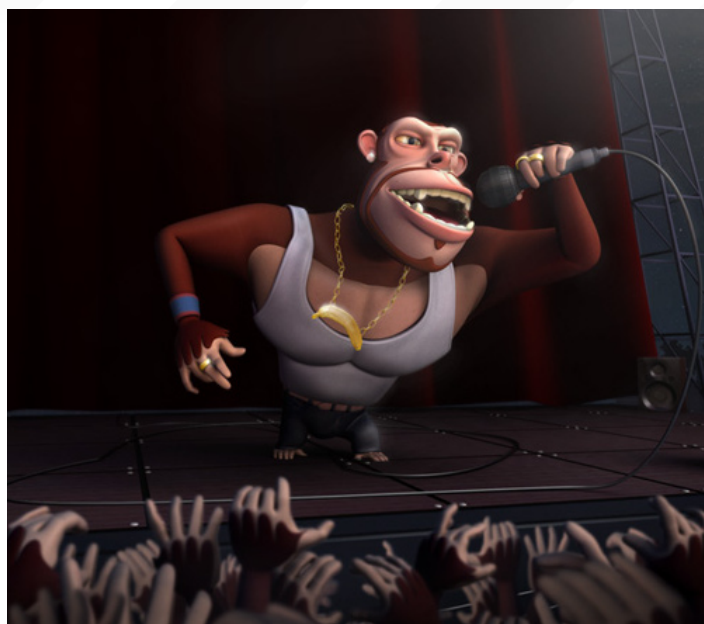
5TH ZINKETE
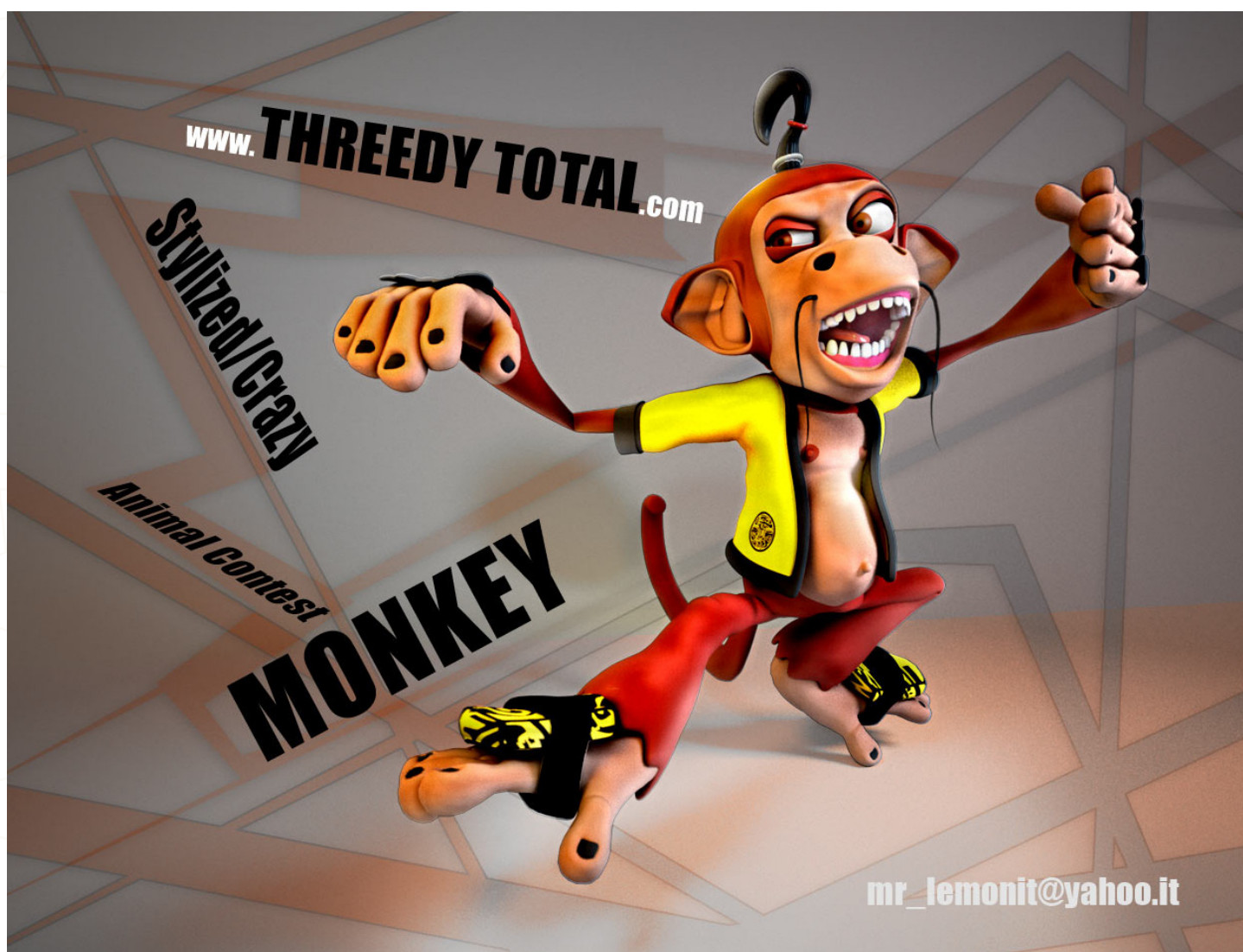
5TH MR_LEMON

What are we looking for?

Funny and humorous entries which break the animal down to its most recognisable components; emphasize these in whichever ways you think best, and render your stylised/abstract/cartoon masterpiece. The rules are pretty laid back: please submit 1 x 3D render (minor post work is OK); it's up to you if you want to have a background or include some graphical elements or text on your image. Renders of the 800 pixel dimension sound about right, but the winners will be featured in 3DCreative Magazine, so if you can create some higher resolution images, too - all the better! There will be one competition per month with the deadline being the end of the month (GMT). For a valid entry, simply make sure your final image is posted in the main competition thread before the deadline. We require the top 3 winners to submit Making Of overview articles that will be shown on either 3DTotal or in 3DCreative Magazine. These need to show the stages of your creation - different elements and some brief explanation text - of why, and how, you did what you did. We will format this into some nice-looking pages to give you some great exposure, and us some quality content. Each competition will have one main thread which starts with the brief at the top. All entrants should post all WIPs, give feedback, and generally laugh at the crazy ideas that are emerging each month...
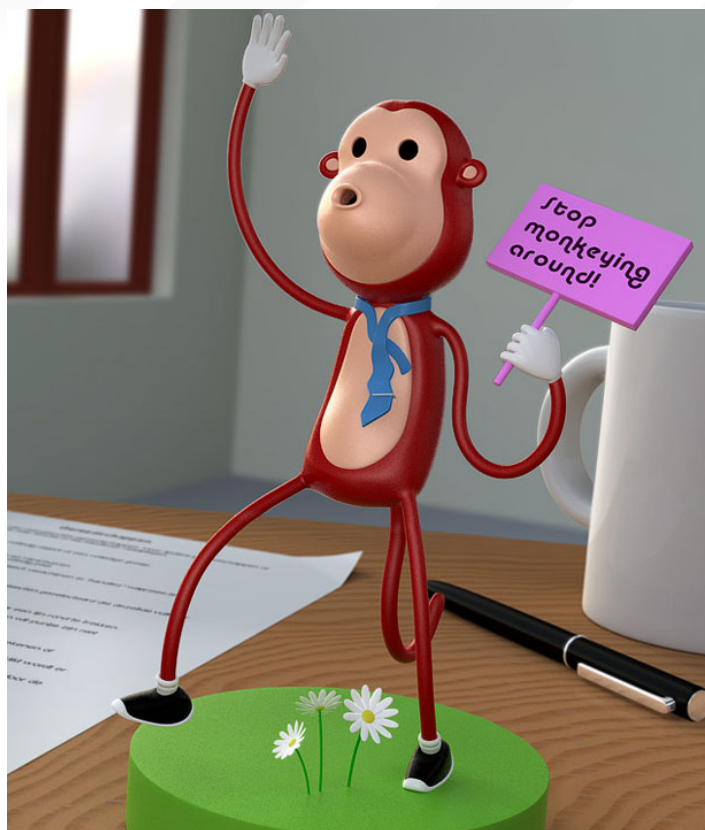
4th Dreezle

3rd Shahin_fj

2nd Arrhenius

CHALLENGE THREAD

The entire Stylised MONKEY Challenge competition can be viewed here.

The current challenge at the voting stage is:

AYE-AYE

The current challenge taking place is:

CROCODILE

To join the next challenge, or to view previous and/or current entries, please visit:

www.threedy.com

Or, for the 2D Challenge, please visit:

www.conceptart.org

Or contact: ben@zoopublishing.com

LAST MONTH'S CHALLENGE WINNERS:

1. Geoffrey Cramm
2. Alhaitham Jassar
3. David Neale

Read on for the Making Ofs their winning entries…

In Association with

1ST MIVADEBO

SNAIL MAKING OFS...

Here are the Making Ofs from last month's top three winning entries...

3RD - REYNDERS DRIES

Hello there, fellow 3D enthusiasts! I'll try to give you some insight here as to how I made this render (Fig.01) ...

I wanted to create a snail with some unique characteristics. I started sketching and came up with all kinds of ideas. The idea I liked the most was one of a punk rock skating snail (Fig.02). Most of the time I will make lots of sketches to get a good overview for my model, but this time I was far too anxious to get to the modelling stage and so this simple sketch just had to do.

I had never used Maya before this project but wanted to give it a try - the snail competition was the perfect starting point for me! Since this is my first - and only - model ever made in Maya, there is inevitably going to be the chance that there are far better ways to have created this model...

First of all, I used the Create Polygon tool to create a single polygon from the side view. Then I used the Split Polygon tool to create the geometry that I wanted. Don't forget to delete the unused points at the border when you are finished with the splitting part. The reason you

Fig.01
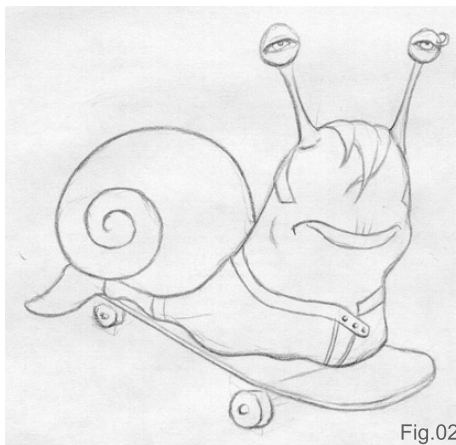
Fig.02

should do this is to use quad polygons - they smooth better (Fig.03).
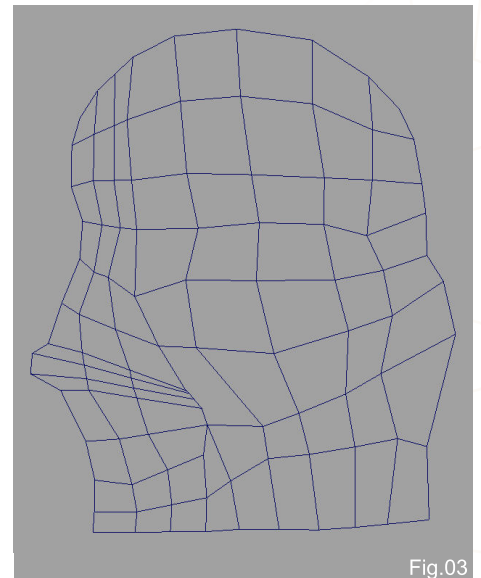
Fig.03

I then started moving some points outwards. When working in the perspective view you can achieve results pretty quickly. Here I mirrored the geometry to get a better overview (Fig.04).

I switched between the Move tool and the Extrude tool to create the mouth and chin (Fig.05).

I continued by closing the gap at the bottom and started extruding again. The eye sockets are simple spheres where I extruded some polys inwards (Fig.06).

To make the "wobbly" bottom, I simply extruded a row of polys. I then used the Split Polygon tool to create the creases. With the Move tool I moved some edges inwards (Fig.07).

When the wobbly part was complete (sorry I really don't know what to call that part), I bent the model and added the hair (Fig.08). Using the Split Polygon tool I created some extra wrinkles in the face and neck. The shell is simply a cone shape that I rolled up.

To give my snail some more expression, I opened his mouth a little and bent his tentacles (more informally called "eye stalks"). By deforming him a little more, he became less symmetrical (Fig.09).
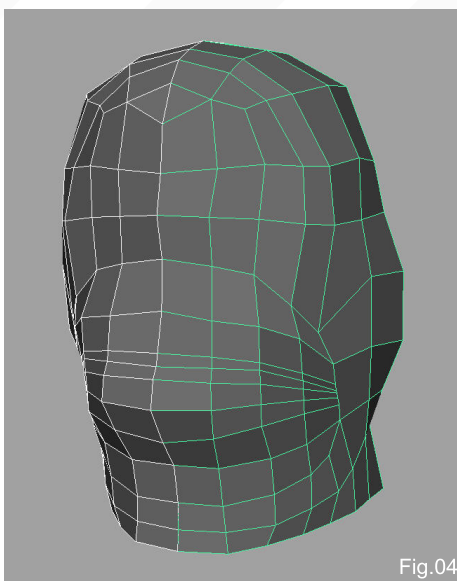
Fig.04
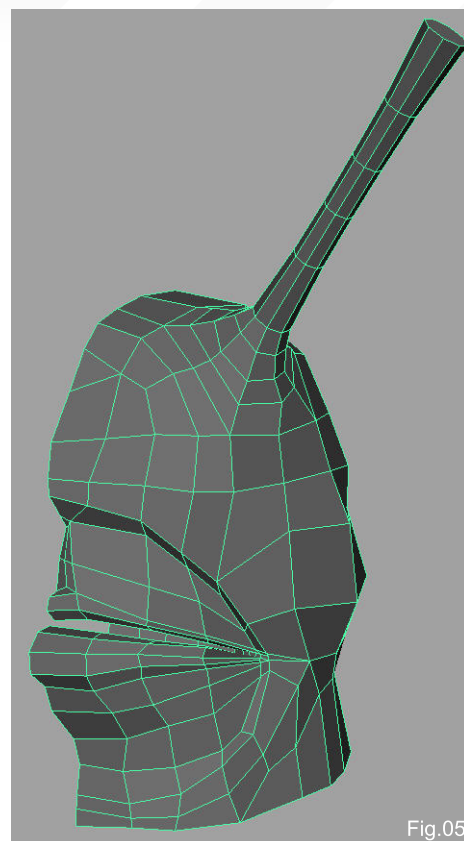
Fig.05
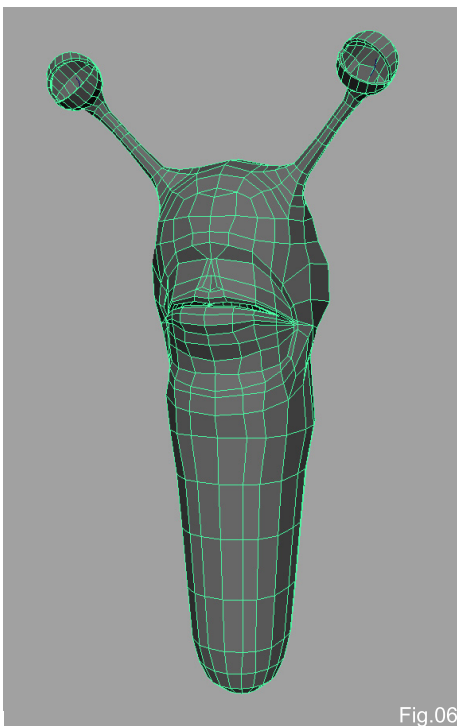
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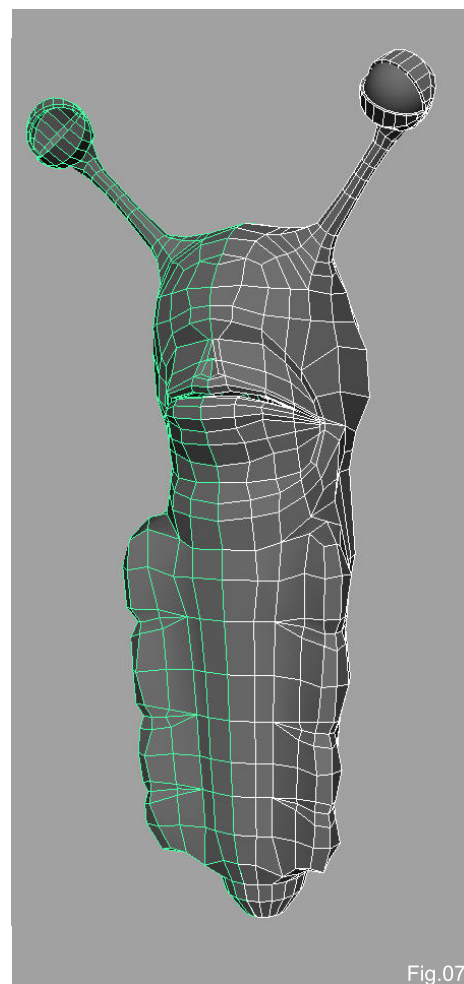
Fig.07
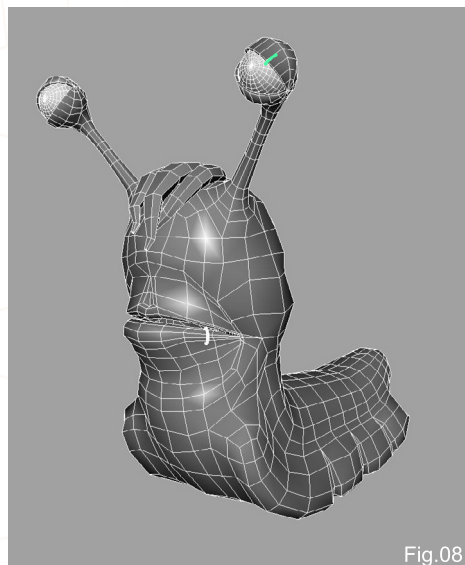
Fig.08
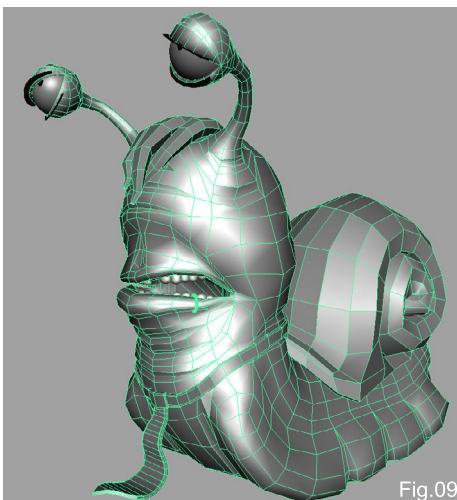
Fig.09

This tutorial is much too short to go into all the specifics of the UV mapping, and since nothing really fancy happened here I'll skip this part (Fig.10). The background scene was kept very simple; since it was only to be used for a still image there was no need to create complex geometry. I rendered the scene in a light dome and used a hand-painted sky image to light the scene. It's the same image that I used as a backdrop on an image plane, so the snail would fit in nicely (Fig.11). I then added a few extra lights to make the image look less flat (Fig.12). You can see in Fig.12 that there are numbers representing the tools set I used in this tutorial:

No.1, 5, 6 and 7 are the Area lights: they were used with a very low luminance setting to create a soft light.

No.2 is the Point light: used to create a small highlight on the top of the head.

Fig.10

Fig.11

Fig.12
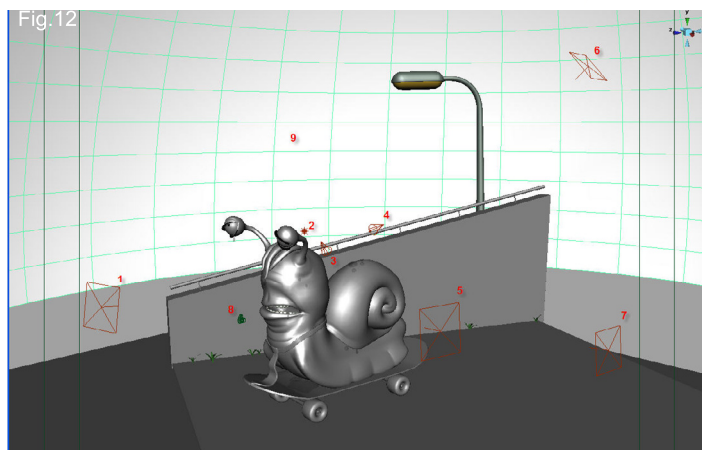
No. 3 and 4 is the Spot lights: they were used as a back light to give the snail a slight glow on the neck and the shell.

No.8 is the Camera.

No.9 is the Skydome.

Final Gather was used to create the realistic effect. The street light was given a low glow value in the texture panel. And here it is: the punk rock skating snail (Fig.13). I hope you have enjoyed this tutorial. As you can see, it wasn't that difficult to create this scene, but it got the job done!

Reynders Dries

Contact them at:

dreezle@telenet.be

Fig.13

Dreezle
dreezle@telenet.be

2nd - Alhaitham jassar

In this Making Of, I'm going to show you how I created my "Poor Snail" for the stylised animal challenge run in the Threedy forum (http://forums.3dtotal.com). I also hope to demonstrate how you can turn a simple idea and scene into something quite "catchy". Naturally, when I heard about the snail challenge in the forums, I wanted to create something new and original; funny and "snails in danger" seemed to be the common theme for most entries, which is when I remembered the French food: escargo (snail) (Fig.01).

As in most 3D projects, the steps will cover the concept sketch, modelling, texturing, rendering and post production. All of my 3D work was done with Blender and Mudbox, and all 2D work was done in Photoshop. So, let's begin...

Sketching

This is the fun part in any project - for me at least - and is when the brain storming really hits, so get your pencils or tablet ready and start sketching! After reading the topic for this challenge, I wanted the scene to be as simple as possible. I used the reference images provided by the Threedy forums to select the best looking shell, but realism was not that important here anyway (Fig.02).

Modelling & Texturing

Body. Nothing complicated here; I firstly modelled the squishy part of the snail by box modelling using Blender (which happens to be my main 3D application).

Shell. Moving to work on the shell, I used a different approach: sculpting. I created a sphere and squished it a little, then went to the Sculpt Mode and sculpted the basic form (as you can see from Fig.03). At this stage there were not details in my sculpting...

Moving back to the soft body, I started to sculpt some details before creating my two-pronged

Al-Haitham Jassar (c) 2007

Fig.01

Fig.02

Fig.03

Fig.04

Fig.05

Fig.06
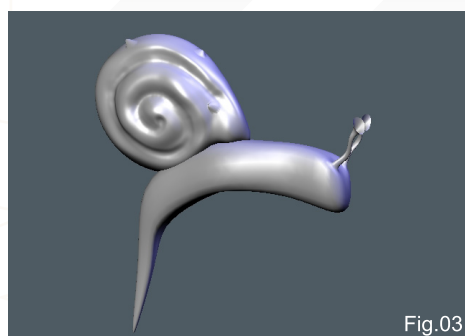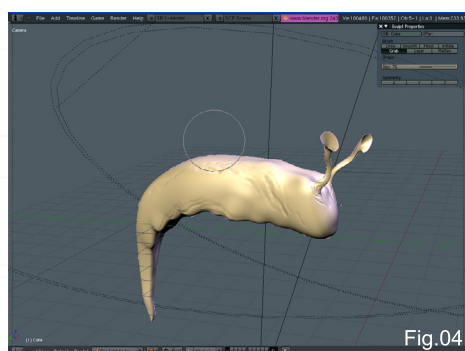
fork (Fig.04 and 05). I then exported the shell and soft body into Mudbox to create the detailed bump maps. I could have done it with Blender but I felt that Mudbox was easier; Blender's sculpt tool is very helpful and powerful, but it's still new and misses some features like the falloff curves (Fig.06). I then painted the textures in Photoshop (PS) using some cool brushes which I found on CGSociety.org; the Net is full of cool free brushes that are readily available for those who search for them (Fig.07 and 08). Now, about the eyes, each eye consists of two spheres; the inside one contains the eye's texture and colour, which I've also painted in PS, and the outer sphere is transparent and glossy. Simple huh? Yes it is, but do make sure you make the texture good quality because it's the key element in eyes! And finally: the goo. I made this also using Blender's sculpting tool
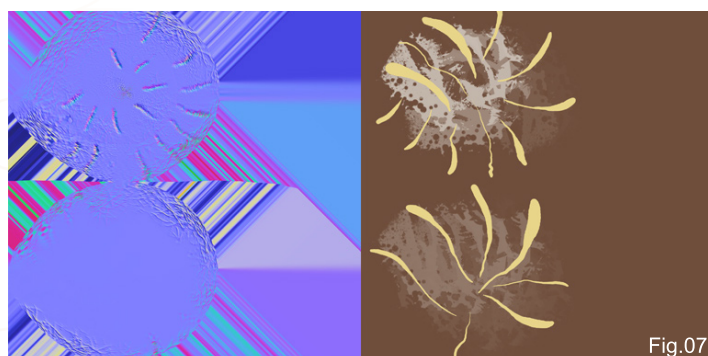
Fig.07
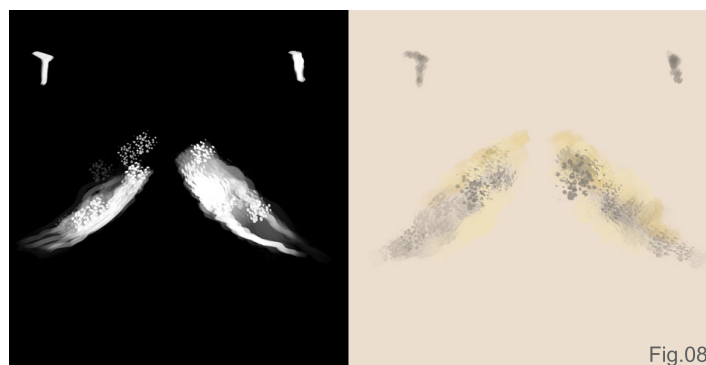
Fig.08
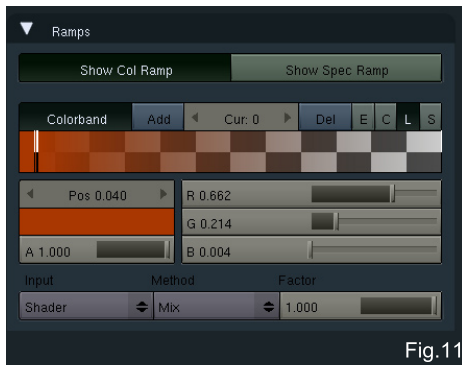
Fig.10

Fig.09

Fig.11

(Fig.09). Here are some screen shots of the objects' materials in Blender:

The soft body: Fig.10 and 11

The fork: Fig.12

The shell: Fig.13 (**Note:** in Blender, the monkey is just one of the default objects to represent materials in the preview window)
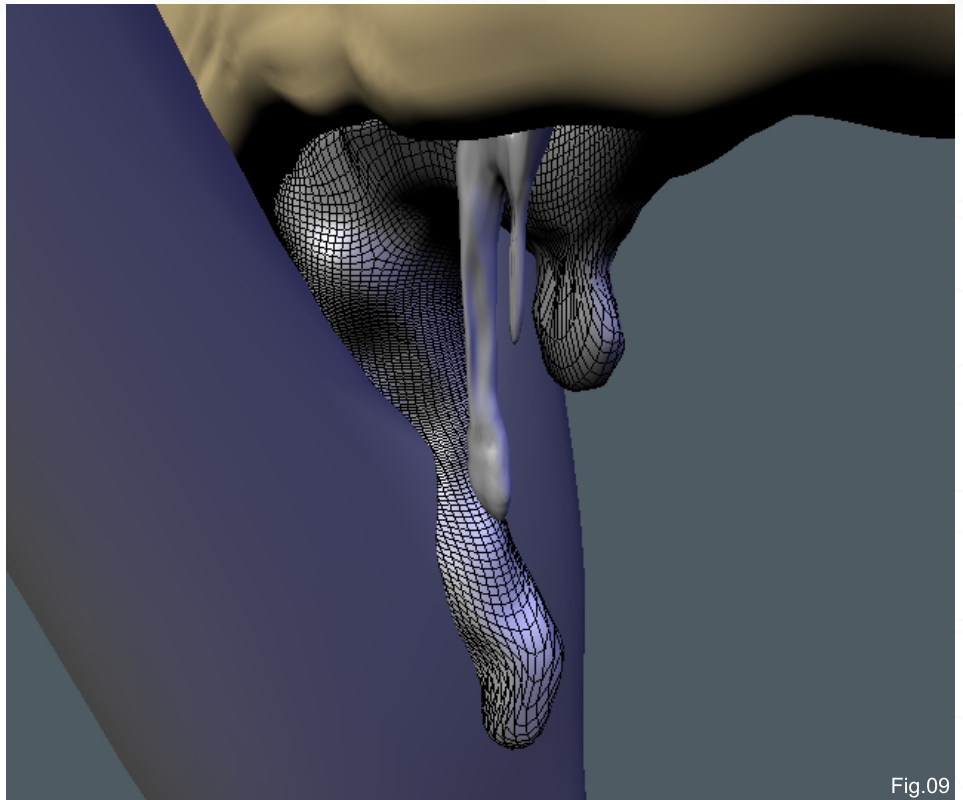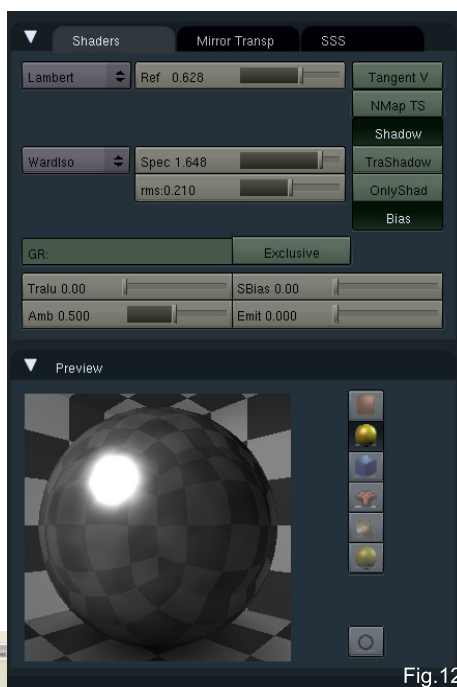
Fig.12
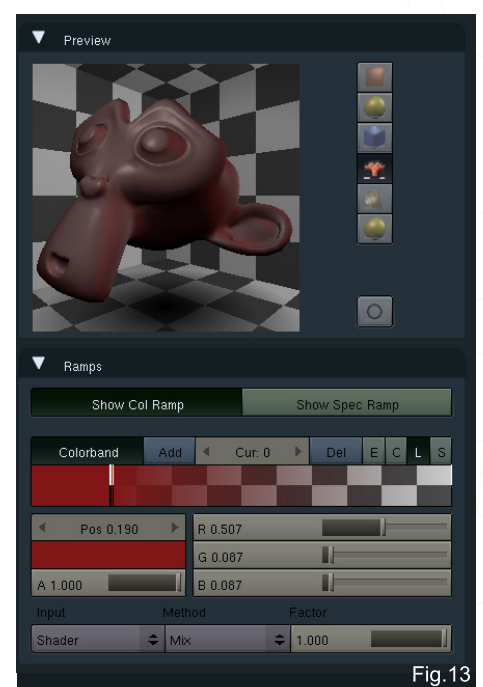
Fig.13
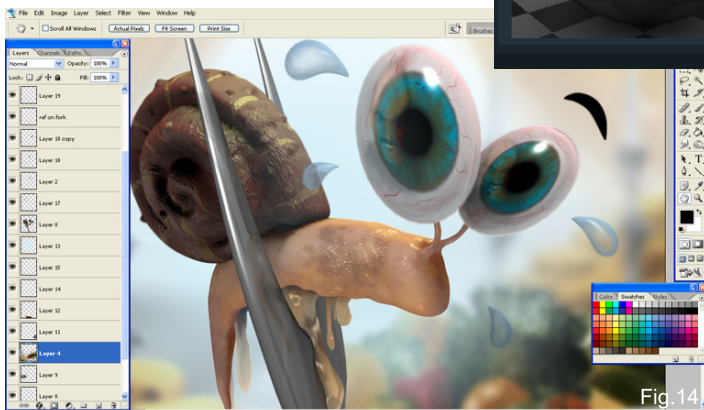
Fig.14

Rendering

Though the scene was simple, I rendered it in layers, because in this way I was able to control each element as I wanted. Then I opened up Photoshop…

Post Production

For the background scene, I searched the Net for a collection of dish and candle photographs, and began combining them in PS; the background

Fig.15

alone was approximately 20 layers (Fig.14). The gradient tool was very helpful throughout this process, along with all the other great tools in PS, to blend the snail in with the background. I also added the diner's reflection in the snail's eyes in Photoshop - look closely and you'll see him! When I felt the scene was finished, I made some final touches and added my signature. I then safely called my image "complete". I hope you've

enjoyed this rather simple Making Of; remember that simple images can be just as interesting as complex scenes (Fig.15).

Alhaitham jassar

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1ST - GEOFFREY CRAMM

Here is the Making Of "Johnny Biglips & Knuckles", for the Stylised Animal (Snail) Challenge... First of all, a big thanks to everyone who voted for me - the challenge sure was fun! I always learn something new when creating a piece of work, so I'm going to take you through the process to - hopefully - pass my experience on to others (Fig.01). This began with a few ideas which seemed a little straightforward and unoriginal to me. I guessed the standard submission was probably going to be a happy, typical, cartoon-like snail with big eyes on top of its tentacles. It didn't take long for me to decide that I wanted to go for a fat, overweight snail, unlike any others of its species. Also, since the eyes on real-life snails are not very well defined, I figured no-one would probably care if I placed his eyes on the side of his head, instead. With that idea in mind, I started doodling away...

CONCEPT SKETCHES

The first concept sketch was satisfying, but wasn't enough... The snail looked a bit like an uninterested, low-life crook, and a bit plain. I decided to keep following that trail and, with the help of some advice from my colleagues, added

Fig.01

Fig.02

Fig.03
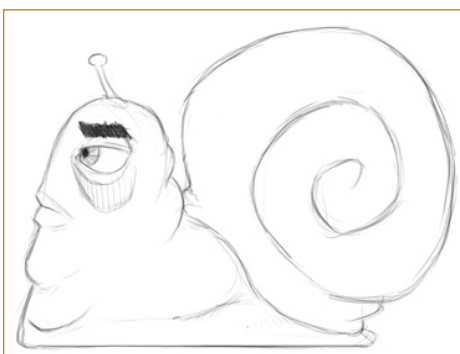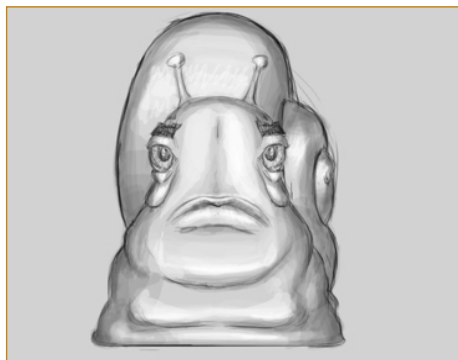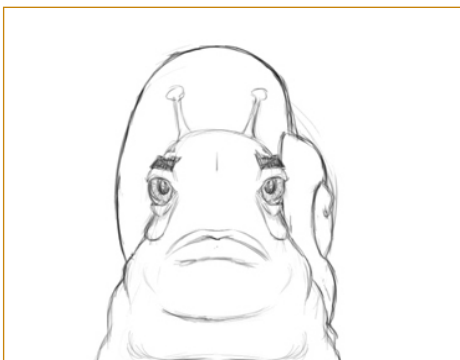
some clothing, details, and a background colour to the sketch. This made him look like more of a gangster, which gave him the character I was searching for (Fig.02 and 03). I then created some side and front view images as a backdrop reference for the modelling stage. Then came the time to start up 3DS Max (Fig.04) ...

MODELLING THE SNAIL

I'm not really a fast modeller, but the basic model was built pretty quickly; it's not really complex geometry, after all. I always start with a rectangle shape converted to an Editable Poly, and then continue extruding the edges with Shift + drag, blocking out the basic contours of the model first. I prefer this way over box-modelling. I tend to lose my overview when I start off with a massive block; with edge extrusion I can

keep focused on one poly at a time. For the shell I created a cylinder primitive to start with. I added a few cap segments and created a spiral shape from the middle by welding vertices and recreating some polygons. After that, I bevelled the spiral polygons to create some depth. I made sure the polygons remained (or became) four-sided and followed the spiral shape. Not only does this make the geometry look clean and smooth but it is handy to keep it organised for the texturing phase (Fig.05). Once the basics were done, it was time to define some of the detail (Fig.06)... The shell was deformed and squeezed with the help of a few Taper modifiers to exaggerate the shape and give it a stylised look, rather than a clean, near-perfect circle. When the shape felt right, I collapsed the stack and moved some vertices by hand. (Actually, both sides contain a spiral shape which is not exactly physically correct, but that doesn't matter since I only rendered one still image.) Next, I chamfered a few vertices on the top front to create bullet holes. After all, a convincing gangster has to have survived a few gun fights, right? I also gave him saggy eye bags and redefined his lips to support his facial expression.

EYES

Each eye consists of two spheres; one for the eyeball itself and a larger one as an outer layer to give a certain glossiness to it. The eyeball has some vertices moved inwards and has an iris/pupil texture projected on it (diffuse and specular map). The outer layer functions as a thin, shiny lens. It has a Fresnel reflection/ transparency map on it to give the sides of the eyeball a reflective, wet look (Fig.07).

SUIT

The suit is done by copying some polygons of the snail's body and scaling it to a bigger size. I adjusted a few polygons and added a few buttons and a tie to make the suit complete. I unwrapped the suit and gave it a repeating textile texture (Fig.08).

Fig.05

Fig.06

Fig.07

Fig.08

Fig.09

Fig.10

Fig.11

Fig.12

Fig.13

Fig.14

Fig.15

Fig.16
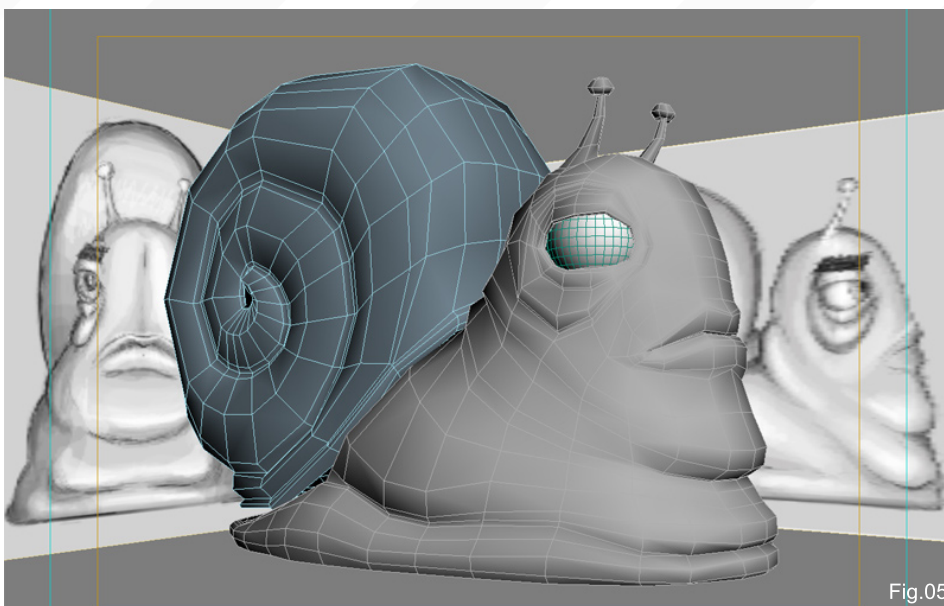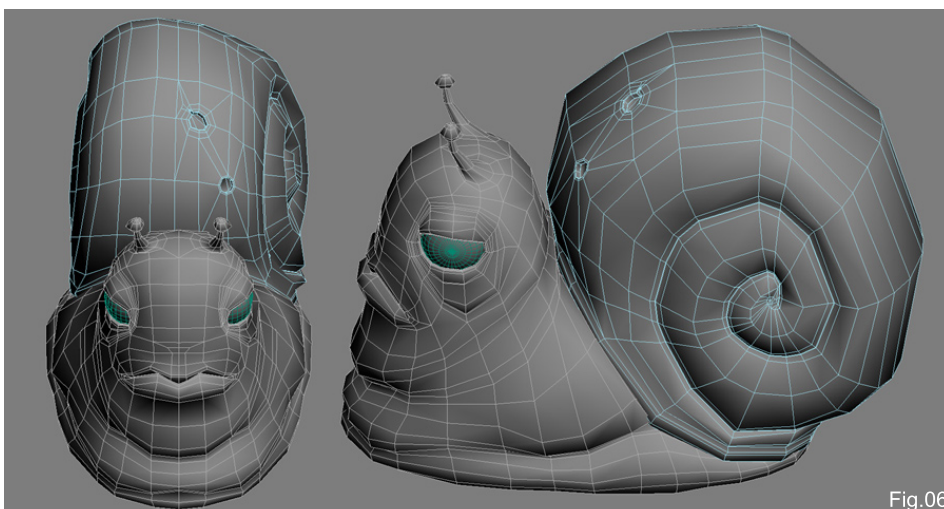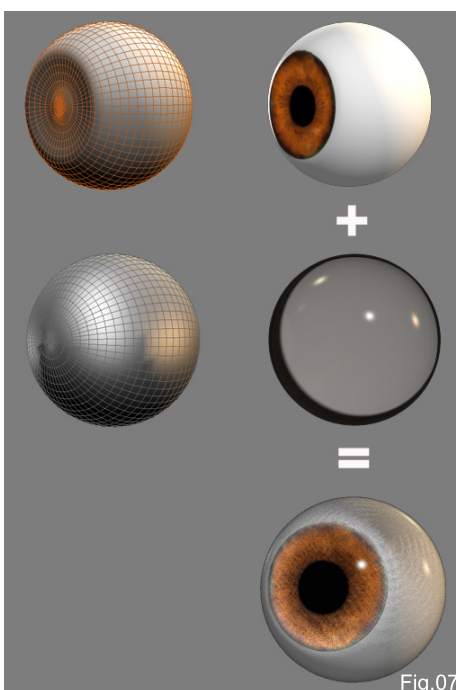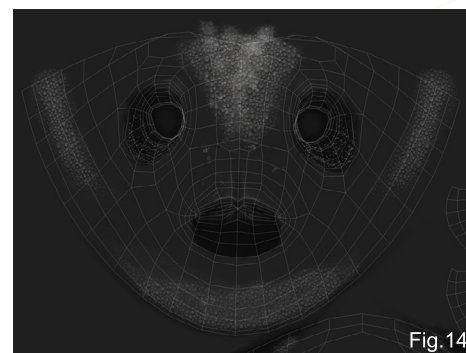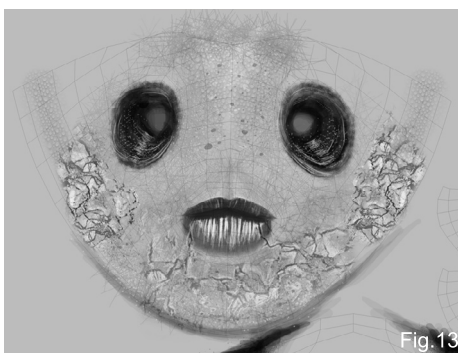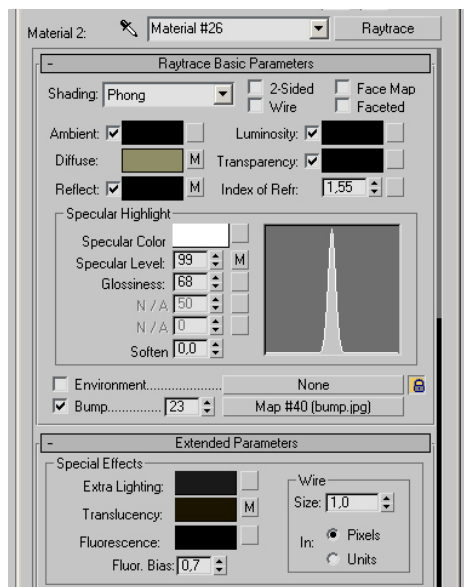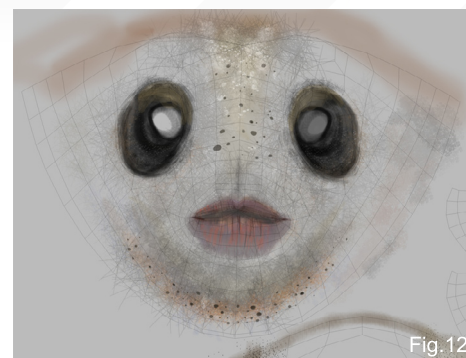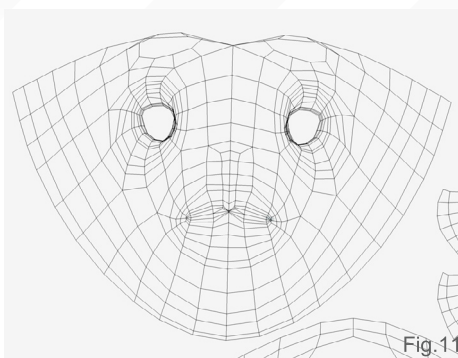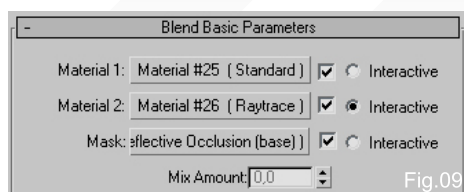
MATERIALS

The snail material is made out of three layers put together in a Blend material (Fig.09). The first layer is a simple Standard (Blinn) material with a dark beige colour. The second layer is more or less the main layer which contains the textures for the snail itself. The Mask layer is an Ambient/Reflective Occlusion shader which makes the dark beige colour visible around corners and creases, as an addition to the shadows in these particular areas (Fig.10). I unwrapped the UVW map with the Pelt Mapping function in the Unwrap UVW modifier (Fig.11). The shader is a Raytrace material with a translucency map. I also painted a diffuse map, and separate images for the specular level, reflection and bump values (see corresponding images). The images are a mix of hand-painted parts, mostly made with custom brushes, and photographs of dirt, cracks and water droplets. The same was done with the shell texture; I copied parts of photographs and merged them together, giving it a personal touch by painting over it and achieving the desired look by creating separate images for all the material components (Fig.12 - 17).

Fig.17
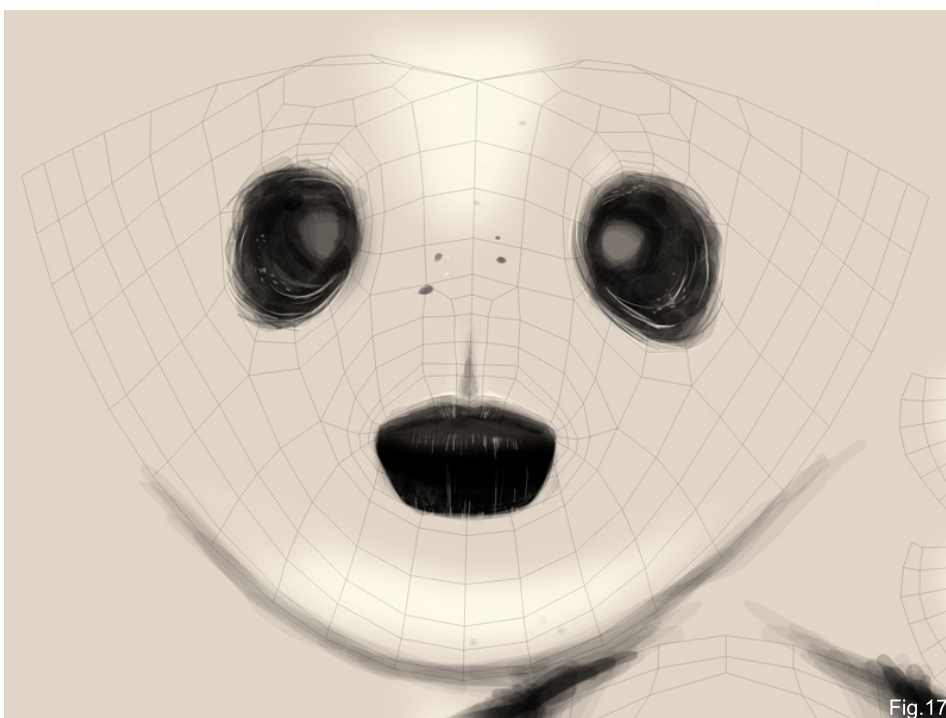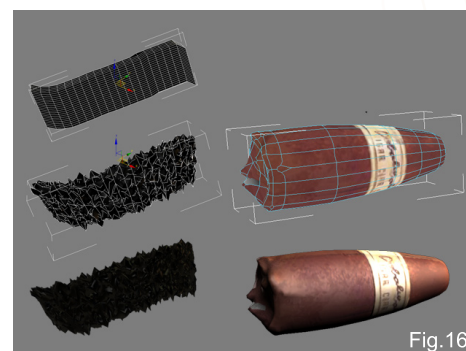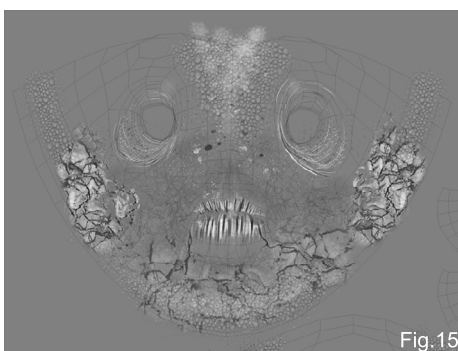
Fig.18

ADDITIONAL DETAILS

The eyebrows were made by subdividing a box primitive and by adding a Displace modifier to the stack with Noise maps. On top of that, I also used Bend modifiers to adjust their shape and place them in the right positions above the eyes. The cigar is a simple cylinder converted into an Editable Poly and tweaked into a cigar shape. The beard on his chin was made by scattering 250 small cylinders with Bend modifiers on them. All of these fine details give the snail an unpolished, characteristic look.

LIGHTING & RENDERING

The lighting setup consists of one Omni light and five Target Spots. The Omni is for the all-round illumination, to raise the amount of global light in the scene. Three Spots were used as a three-point lighting setup (a Key light, Fill light and Back light) and to illuminate the entire snail. The two other Spots were used as supportive lighting; one for extra Specular reflection in the right eye, and one to give a subtle rim light to the shell only.

KNUCKLES: THE EVIL HENCHMAN

Together with Michiel Hopman, a colleague of mine, we came up with the idea of adding his (fully rigged) model of a caterpillar to the scene. We thought of a good scenario to support his existence, and thought it would be great to give him the role of the back stabbing henchman, planning evil plots to work his way up to the top. Michiel created a nice mobster hat and I put him in a sneaky pose. The result gives a humorous touch to the image and I think also adds a sort of story element, which I believe really supports the quality. I rendered the two characters separately on a Plane with a Blend material on it; the first layer was completely black, the second one was a Matte/Shadow material. An Ambient/Reflective Occlusion shader as a mask created a nice, soft shadow on the Plane and made the rest of the Plane transparent and ready to composite in Photoshop. I also rendered a separate layer with a concrete texture to give them something to stand on, and painted a background in Photoshop with a set of custom brushes, similar to the one in the concept sketch. I also lit the cigar by adding a few highlights and some smoke in Photoshop. As you can see, I brushed away the lower bullet hole since it didn't come out very well due to the large, black eyebrow. After a few other minor touch-ups, I decided to call it "done". It was a great contest, and I'll hopefully see you next time (Fig.18) ...

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Tobias Trebeljahr

Ralf Stumpf

Nelson Liaw

Anthony Guebels

Artur Szygulski

Adrian Tiba

Gustavo Capote

Khalid Al Muharraqi

& Vitaly Bulgarov

THE VERMEER'S WINDOW

Carles Piles

You can also follow an in-depth interview with this artist in this very issue of 3DCreative magazine...

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PIRATE REDBIRD

Ralf Stumpf

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SCARY
TOONS

Red
Bird

RALF STUMPF '07

LUNG

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LOUNGE (NIGHT & DAY)

Gustavo Capote

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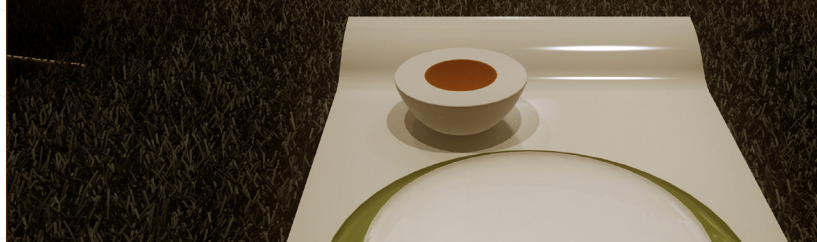
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Mini Cooper

Adrian Tiba

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HammerHead

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SAD COSMO

Anthony Guebels

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www.users.skynet.be/fa995176/portfolio.htm
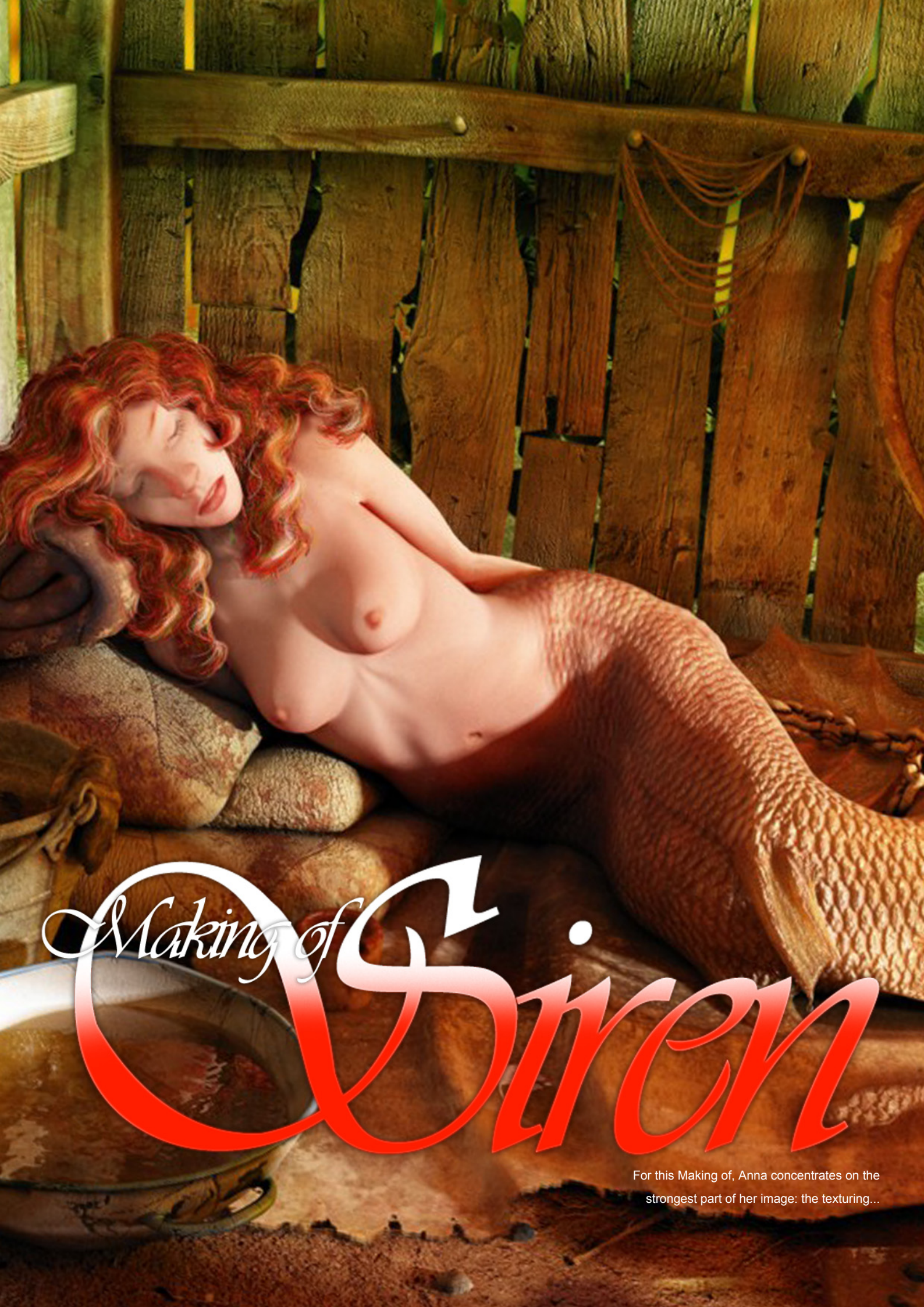
Making of *Siren*

For this Making of, Anna concentrates on the strongest part of her image: the texturing...

Siren

CREATED IN:

Wings 3D, 3DS Max, V-Ray, Corel Photopaint, Adobe Photoshop.

I will not talk too much about the modelling process here, but will instead discuss more about the texturing. This is not a tutorial about the basics, just a general overview. I am assuming that the reader already knows the basics of the programs I have used.

MODELLING

I modelled mainly in Wings 3D, except for objects which are not supported by the program (splines, planes and particles). Most of the models were made from boxes or cylinders (Fig01). The siren was modelled in a neutral position, and was later set in a lying position in Max. For this, I used a simple skeleton and some boxes, cylinders and spheres linked to the bones. The siren was connected to the geometry by a skin modifier. Later, in Wings 3D, I fixed some deformations which appeared whilst rigging, and I modelled a blanket underneath her (Fig02a-e). For the planks of wood, I took one of my textures, as a blueprint, into Wings 3D and modelled using it as a guide. With this method, the geometry perfectly fit
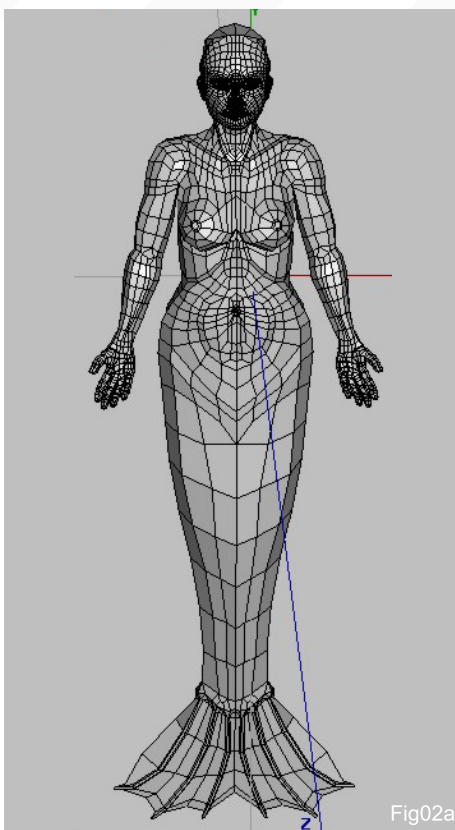
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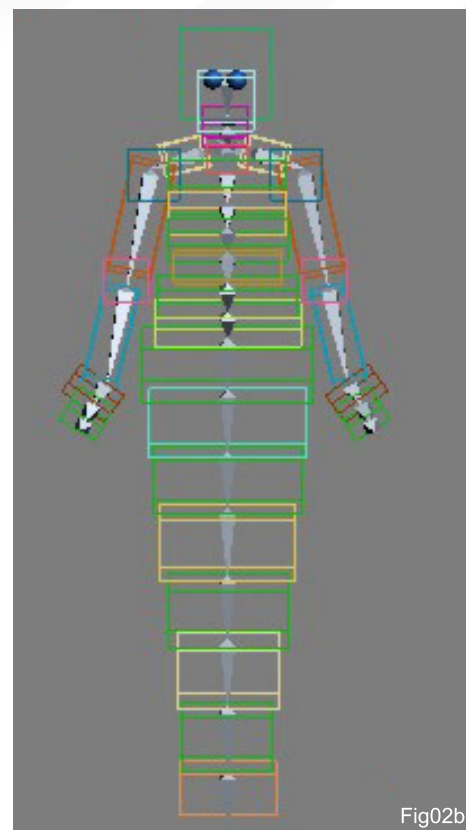
Fig02b

Fig02c
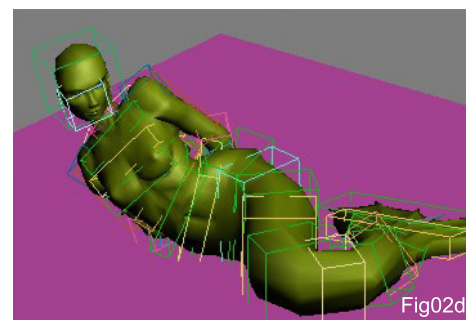
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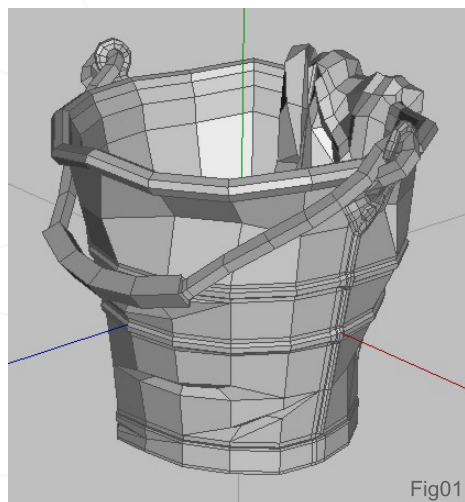
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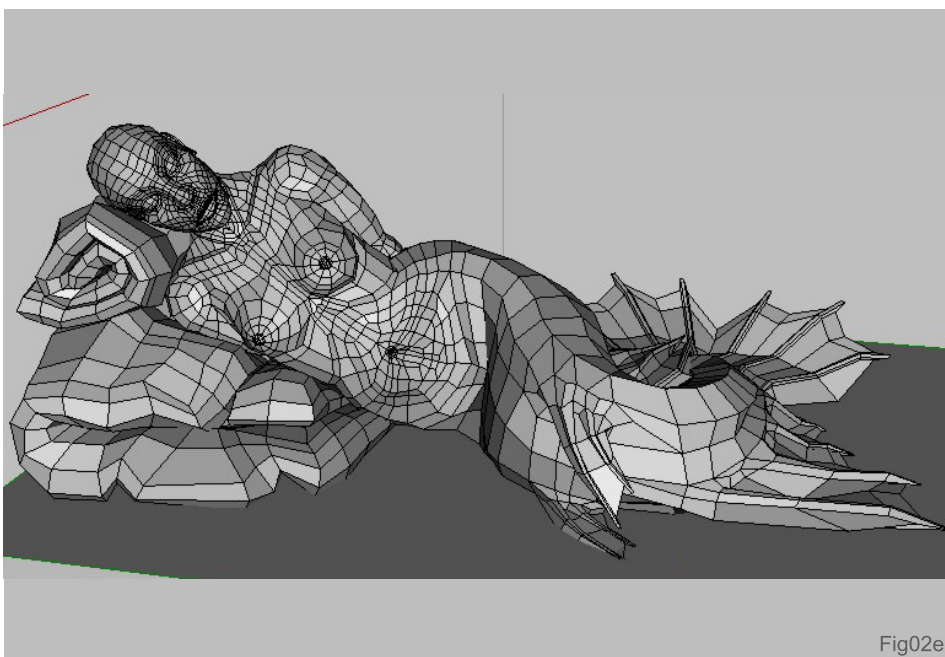
Fig02e

Fig03a
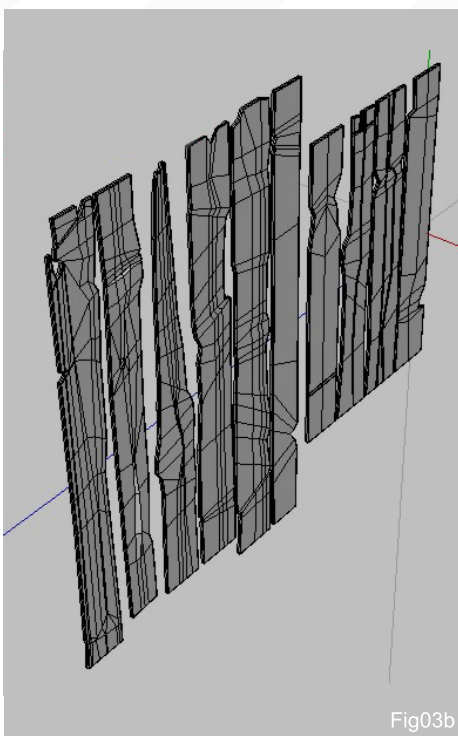
Fig03b

Fig03c
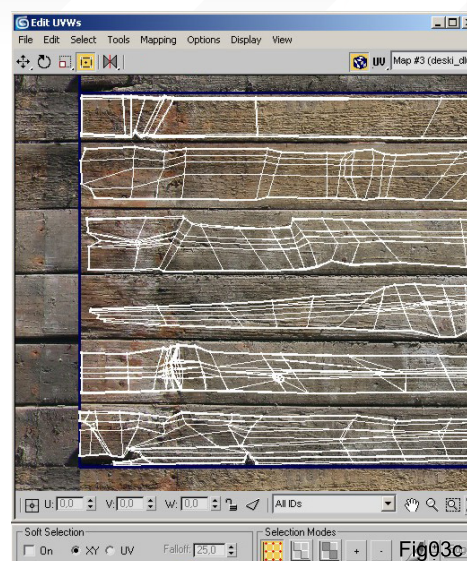
the texture. I modelled a few different planks there. I mapped them planar, and in the Unwrap Editor I moved them so that each one was in its place on the texture. On the top, I applied a Meshsmooth modifier. I later added some dirt and a baked lighting map, but I will explain more about this later on with other objects (Fig03a-c). The basket was modelled in Max with the use of splines. First came the thick spider through the middle. Each spline was given a different thickness so that it didn't look too regular. I worked all of the thin splines around, also using different thicknesses. I modelled the basket similar to how you would in real life, fitting each spline separately by hand and starting a new spline after each one or two rounds. (I modelled the basket over a week, so I recommend
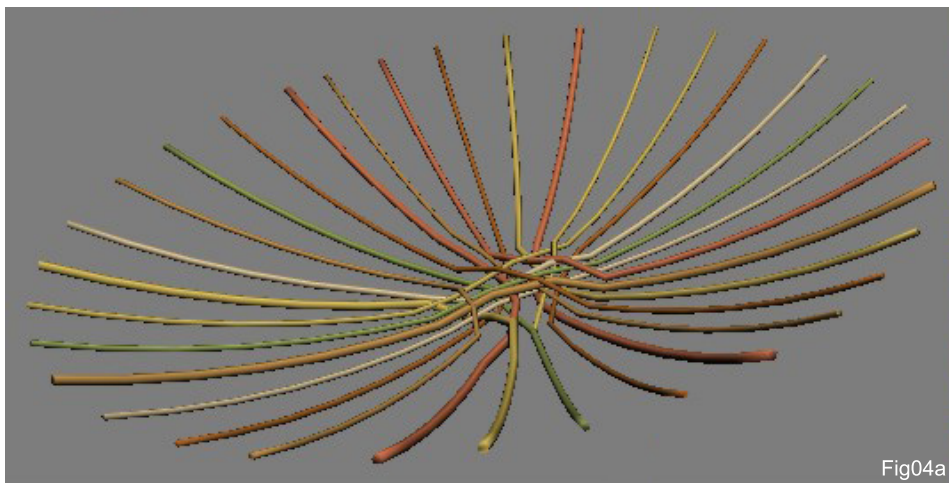
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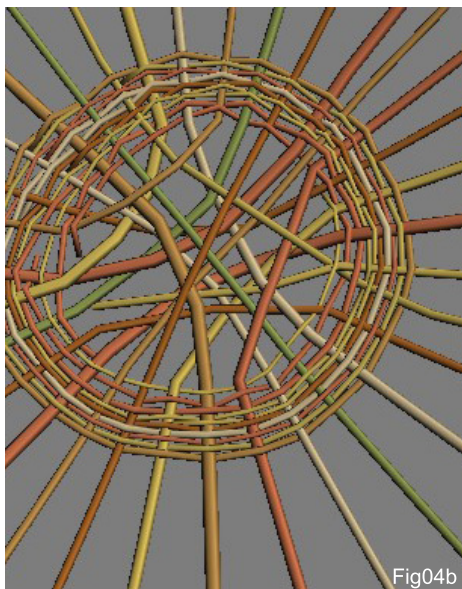
Fig04b
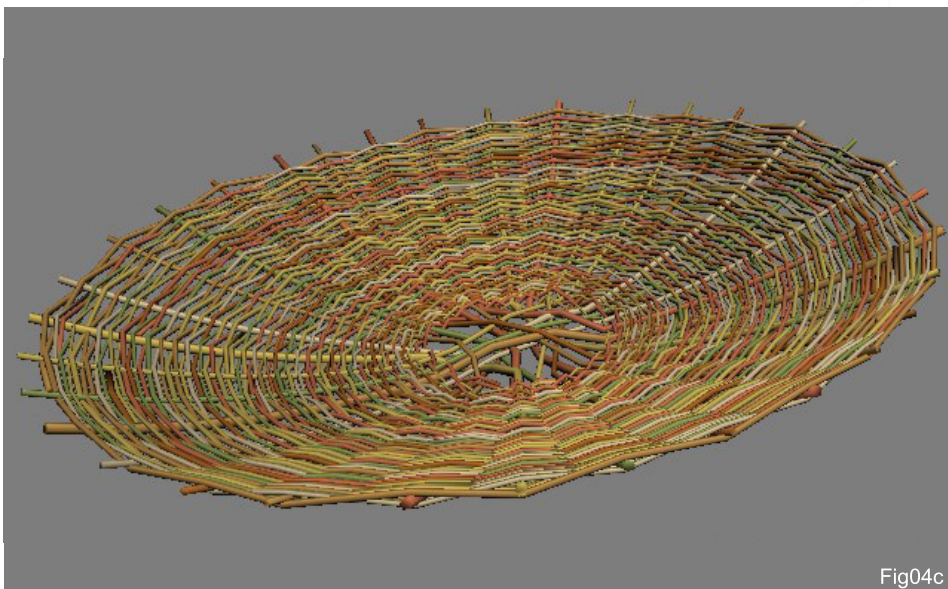
Fig04c

this method only to very patient people!) The texture is made of two; the first one consists of 7 different colours (shades of brown, green and yellow), the second one is a texture of old rust. The colours are distributed randomly on the splines so that each one is a little different. The rust is mapped planar across the basket as a whole so that it looks more like one (Fig04a-c).

Texturing

When unwrapping, if I know which side of the object will be visible to the camera, I make the seams on the back so that they aren't visible.
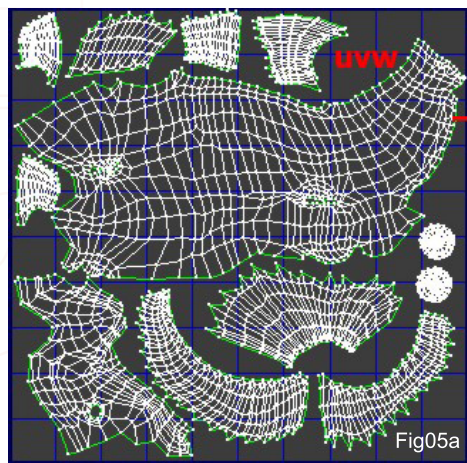
Fig05a
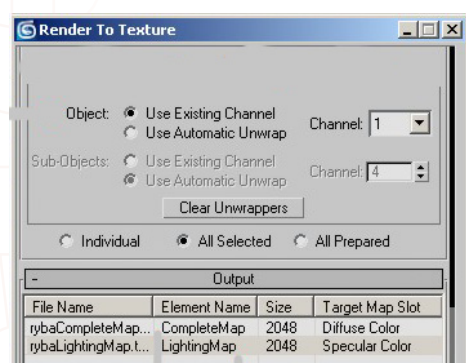
Fig05b

Fig05c

Some elements which will be completely invisible I don't unwrap at all. For unwrapping, I used pelt mapping and later the relax dialogue. I put a checker map into the viewport to see if the texture was mapped well. I unwrapped nearly every object, except the grass, water, rope and basket (there's just a planar map). Later, I gave a grey standard material to the objects, put a skylight into the scene, turned on the light tracer (scanline) and render to texture, with the option lighting or complete depending on which had the better look and contrast. I set the resolution on the size of the planned texture. I use this baked map later on when I created the diffuse map for the objects (Ambient Occlusion can also be used for this, but I didn't know about it when I made this scene) (Fig05a-c). Some things which I follow when I create texture:

1. Take a UVW map.

2. **Ground:** Take a map which has approximately the desired structure of the object. So, if you want a fish, take luski. If there should be planks, take wood. If there should be a curtain, take some cloth. And so on.

3. **Dirt:** Here the structure isn't important anymore; it's more important that it's dirty and irregular. You can give moss or human skin to a fish, you can give rusted metal to wood - take whatever is available. There are some black-and-white maps of scratches, splashes, stains and so on available - they're good too - although coloured maps often look better. You can experiment on layers with the different modes, such as Multiply, Overlay, Soft light and others, changing the intensity, manipulating the colours and contrast, and so on.

4. **Baked:** You can add a baked texture (which I mentioned earlier); I usually set it as Multiply. You can also colour this element or change the contrast. (The siren was the first scene where I used this method, so I don't know yet if I'll use it again.) This way, it becomes darker in holes and cavities, and near the bottom, so you can interpret that as more dirt in those areas.

5. **Details:** You can paint something with the brush or paste from a photograph. For example, for the fish I pasted the eyes from a picture; for
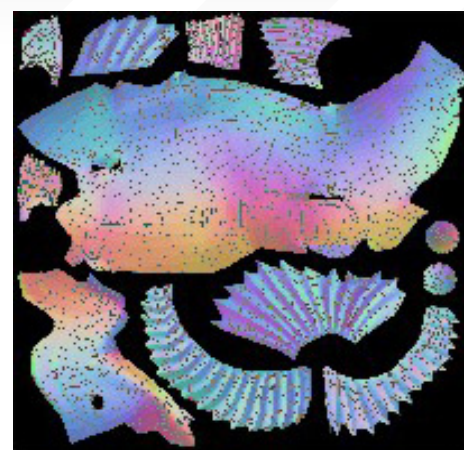
Fig06a

Fig06b
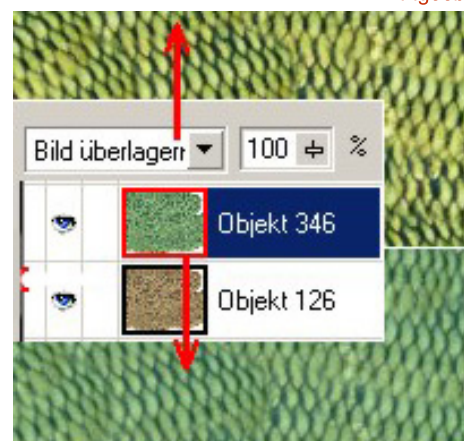
Fig06c
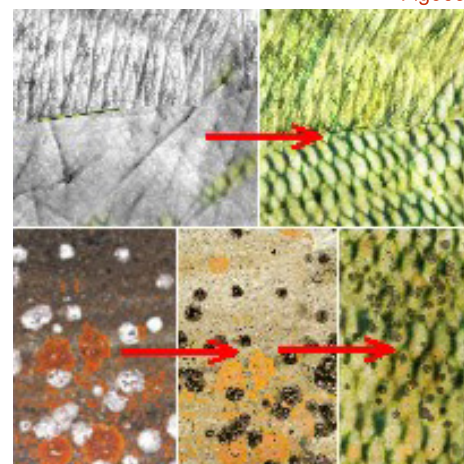
Fig06d
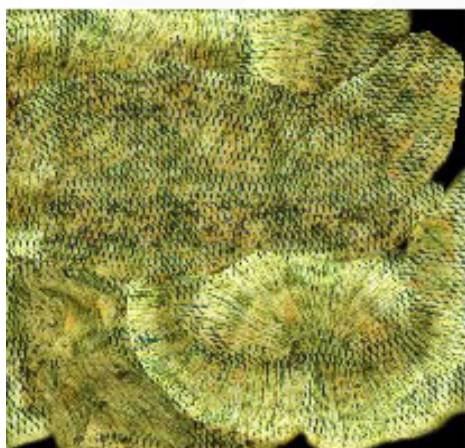
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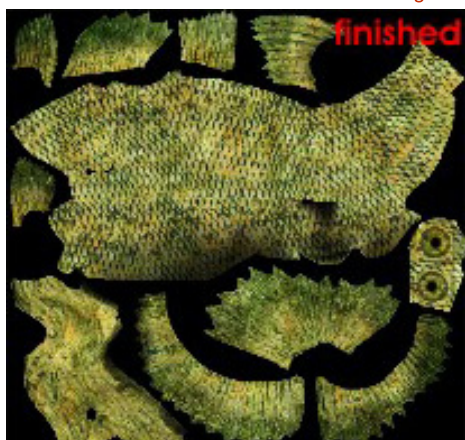
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Fig06f
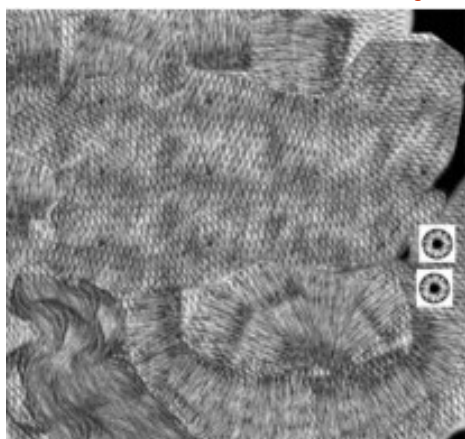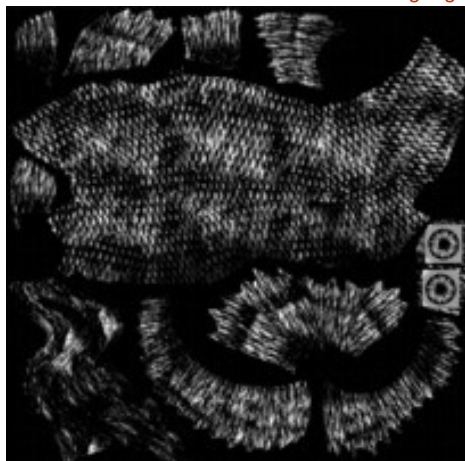
Fig06g

Fig06h

the siren I painted freckles on her face; for the blanket under the siren I took seams, and so on.

6. **Bumps and others:** In most cases, I just make them greyscale, but sometimes you have to change some things in addition. Usually, I make a bump, sometimes also specular, transparency or displacement maps. If a texture is taken straight from a photograph, or is not seamless, you can cut out a piece, make the edges smooth, and then copy. During texturing, I always make test renders to see if the colours are working well with the colours of other objects and with the lighting, and to check that the structure is not too small or too big. Here are some examples (the colours in the final picture look different from this because of the lighting):

THE FISH (2048 pixel resolution) - Fig06a
- UV Texporter over Meshsmooth:
Fig06b (reference image of a big fish): I cut out a segment and laid it along the UVW
Fig06c: I copied the layer and set to Overlay
Fig06d: I added layers for the skin (Overlay) and moss (colour corrected and set it to Multiply)
Fig06e: I lightened areas for the tail
Fig06f: I baked the texture
Fig06g: The bump map
Fig06h: The reflection map

THE BLANKET

under the siren (the one rolled-up on the left) (2048 pixel) - Fig07a - UVW:Fig07b: I used sections from several reference images of elephants and pieced them together.
Fig07c: Pieces of elephant sections were placed along the UVW - the transitions are
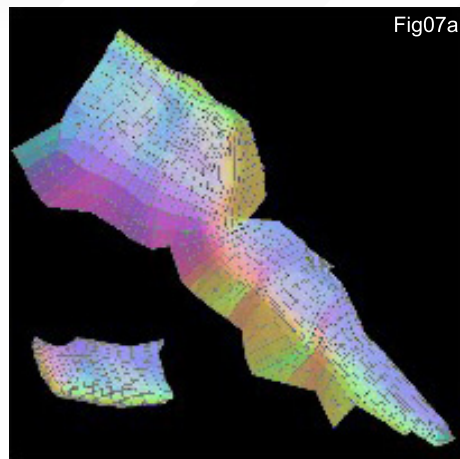
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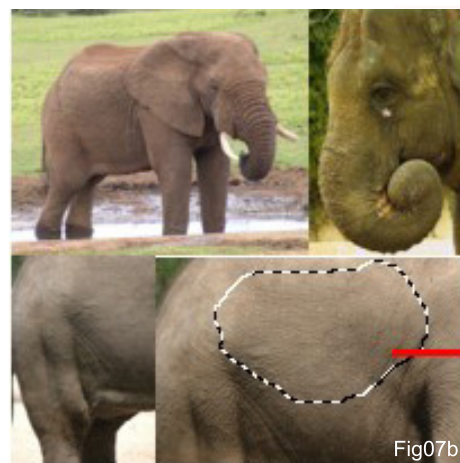
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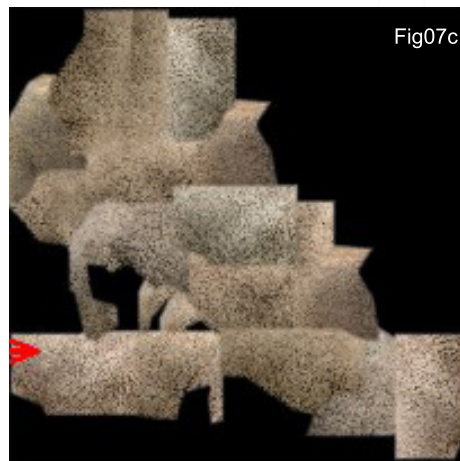
Fig07c

Fig07d
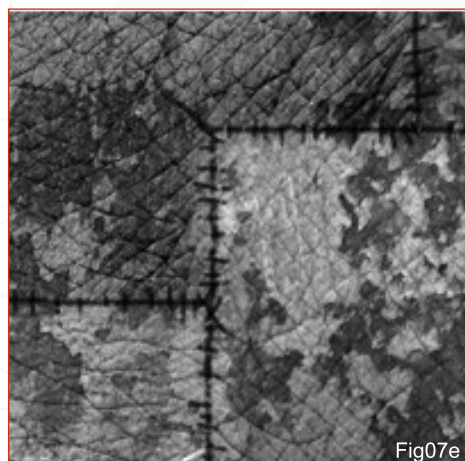
Fig07e
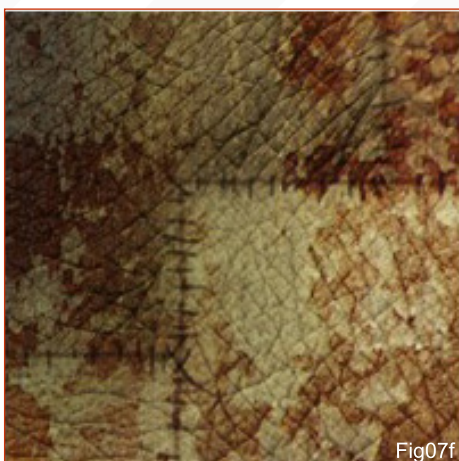
Fig07f

Fig07g
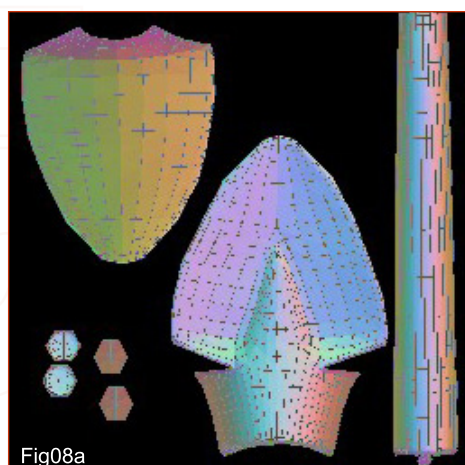
Fig08a

Fig08b

Fig08c
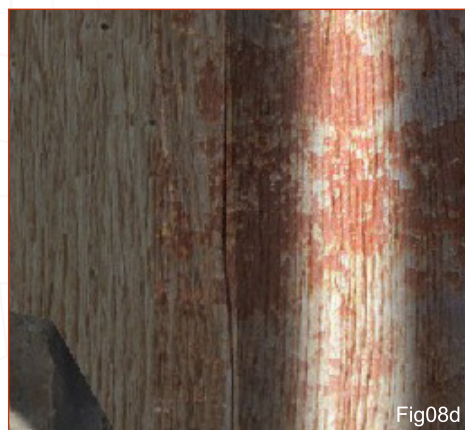
Fig08d
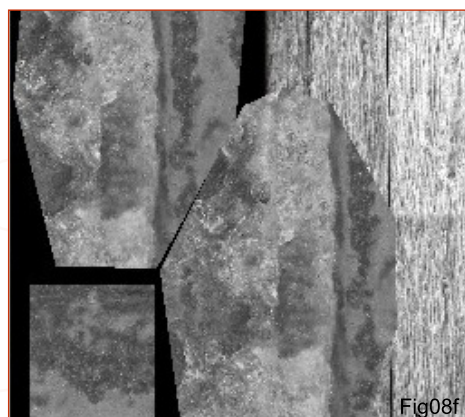
Fig08f
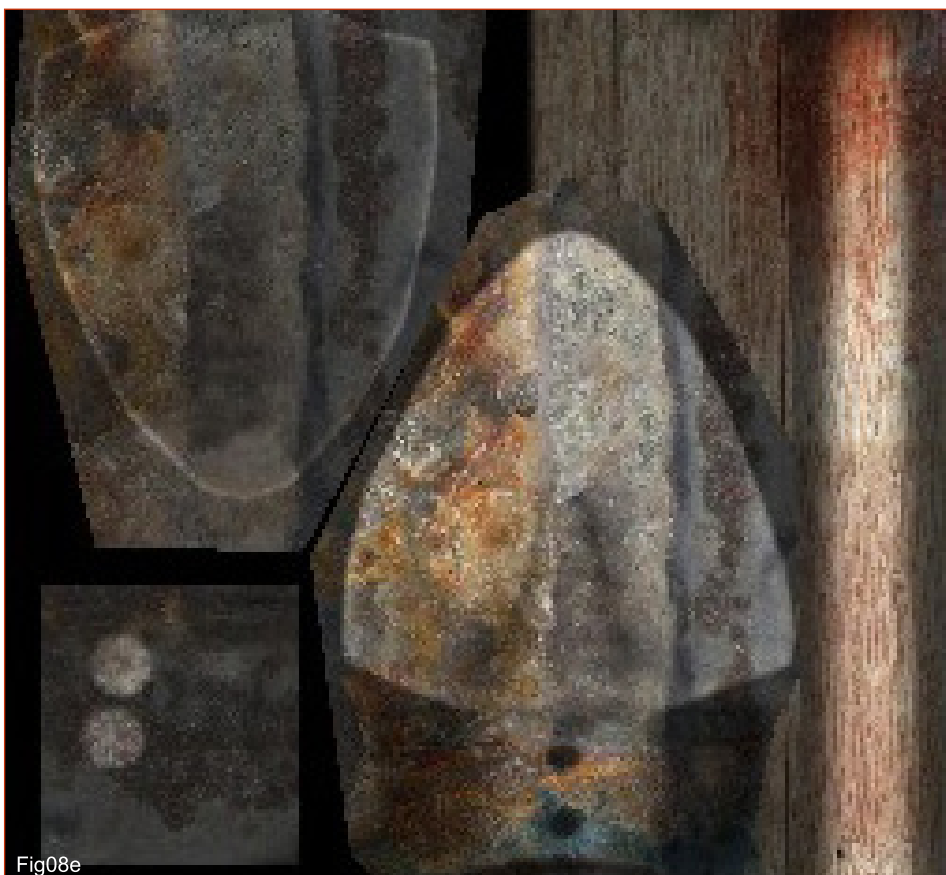
Fig08e

Fig09

clearly visible. Fig07d: I added lines along the transitions and drew a stitched effect along them, too. I also added a rust texture and coloured it green. Fig07e: Bump map

Fig07f: Finished texture sample

Fig07g: Rust image; I used this image several times in other works - it's one of the best images of rust that I have.

THE SPADE (1024 pixel) -

Fig08a - UVW:Fig08b: Metal and wood

Fig08c: Baked texture (Multiply).

Fig08d: I added a dirt texture onto the handle

Fig08e: I made the top part of the handle darker.

Fig08f: Bump.

SAW (1024 pixel) - Fig09

SIREN (in the final picture she looks completely different because of sub surface scattering) (2048 pixel) - Fig10

LIGHTING

I'm not that happy with the lighting used, because it's too monochromatic. I should have added some additional shade from the left.

Fig11: 1: Direct sunlight

Fig11: 2: Red light with a big Area light from the right (it covers the complete wall)

Fig 11: 3 and 4: Two lights in the back slightly light the background; in the house itself they are not visible

Fig11: 5: A light which shines on the breasts of the siren so that they aren't too dark (I later changed the colour in postproduction)

Fig11: 6: HDRI in environment

Fig10
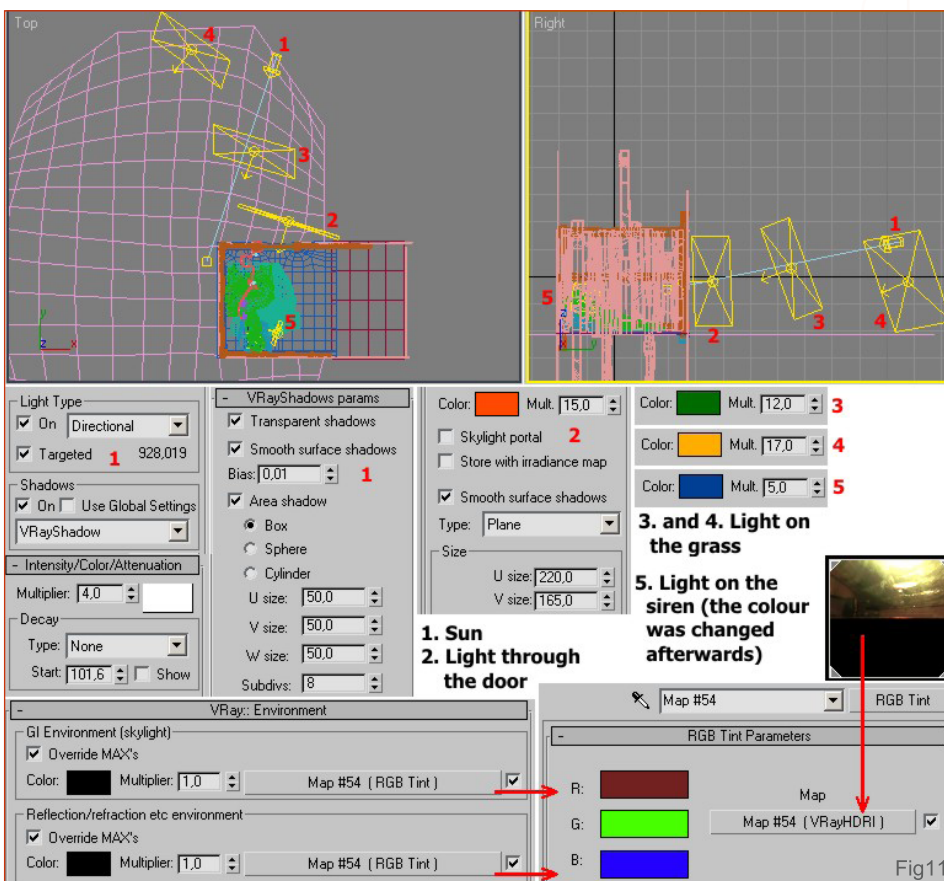
Fig11
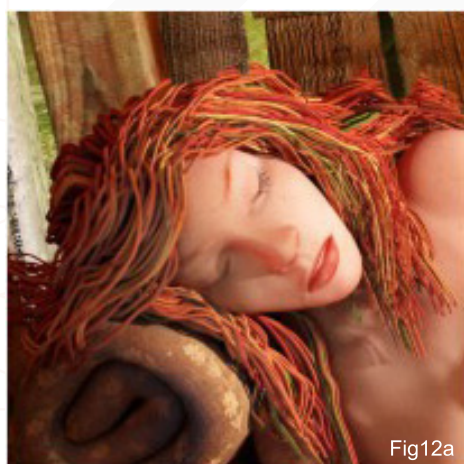
Fig12a
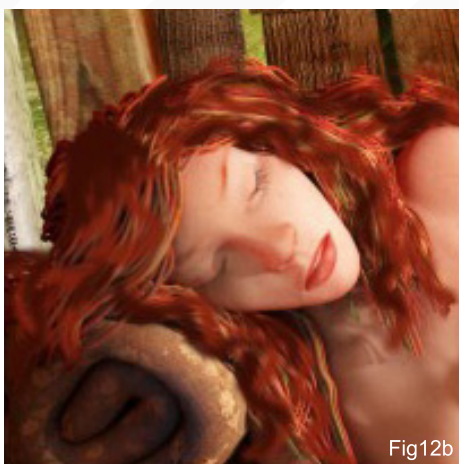
Fig12b
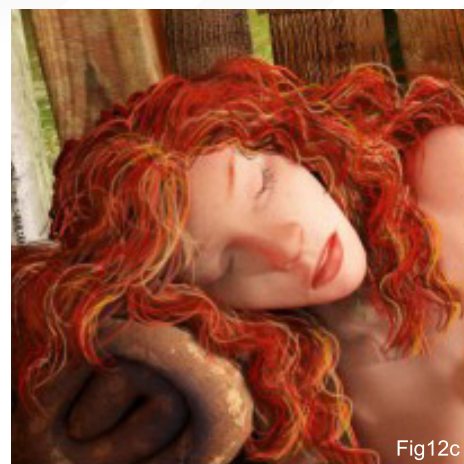
Fig12c
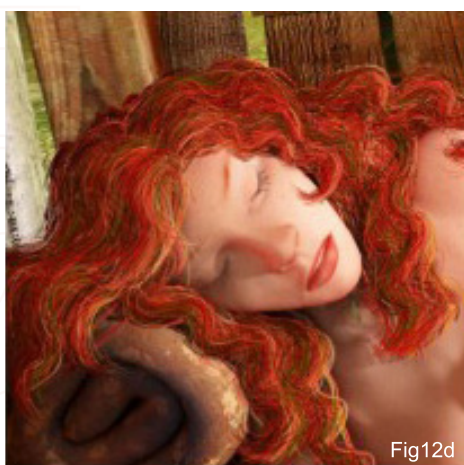
Fig12d
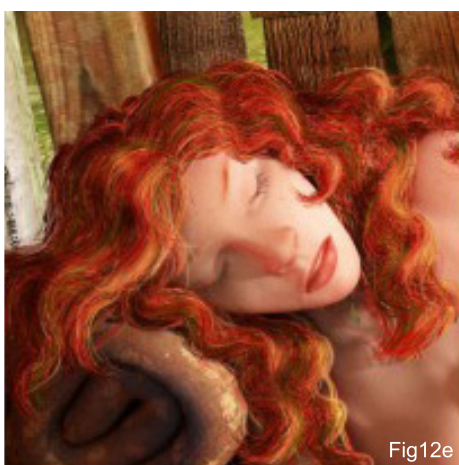
Fig12e
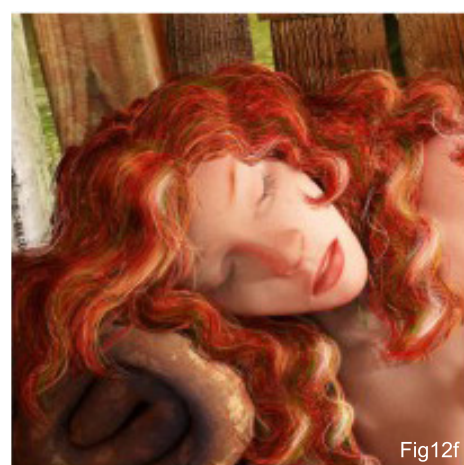
Fig12f

POST PRODUCTION

For the hair, at first I had planned to make it with hair and fur in Max, but there were problems with that (in small renders it looked like a mop, and on the big final render it looked like noodles). So, I painted the hair in Photoshop, whilst trying to add shadows from the hair onto the siren's skin.

Fig12a: Mop or noodles?

Fig12b: Ground to cover the "noodles"

Fig12c: Thick hairs

Fig12d: Thin hairs

Fig12e: Light and shade (with a thick brush)

Fig12f: Shadows on the skin
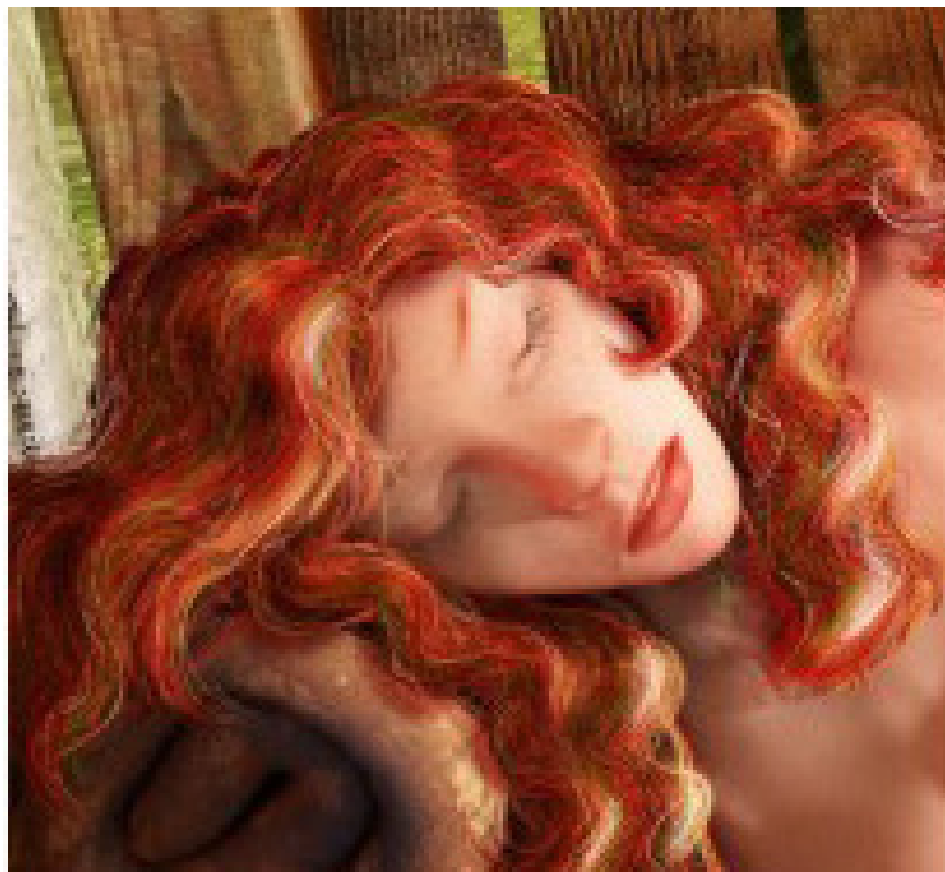
For other post production work, I corrected the puddles, painted a drop of water and added some plants (Fig 13). I also added a greenish gradient from the top and slightly corrected the colour of the grass and the background. I hope that this insight into my working methods has been useful to you. If there are questions or anything is not clear to you, please don't hesitate to contact me at the email address provided below. The final image can be seen in Fig14.
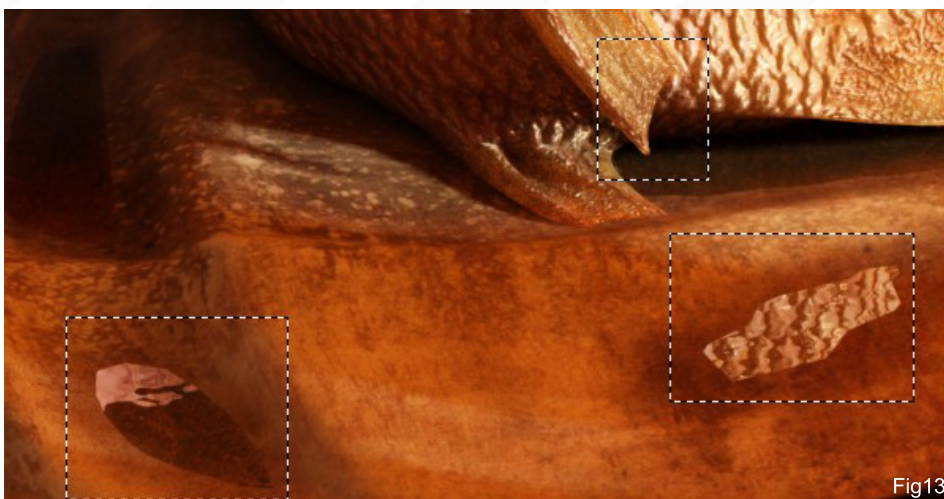
Fig13
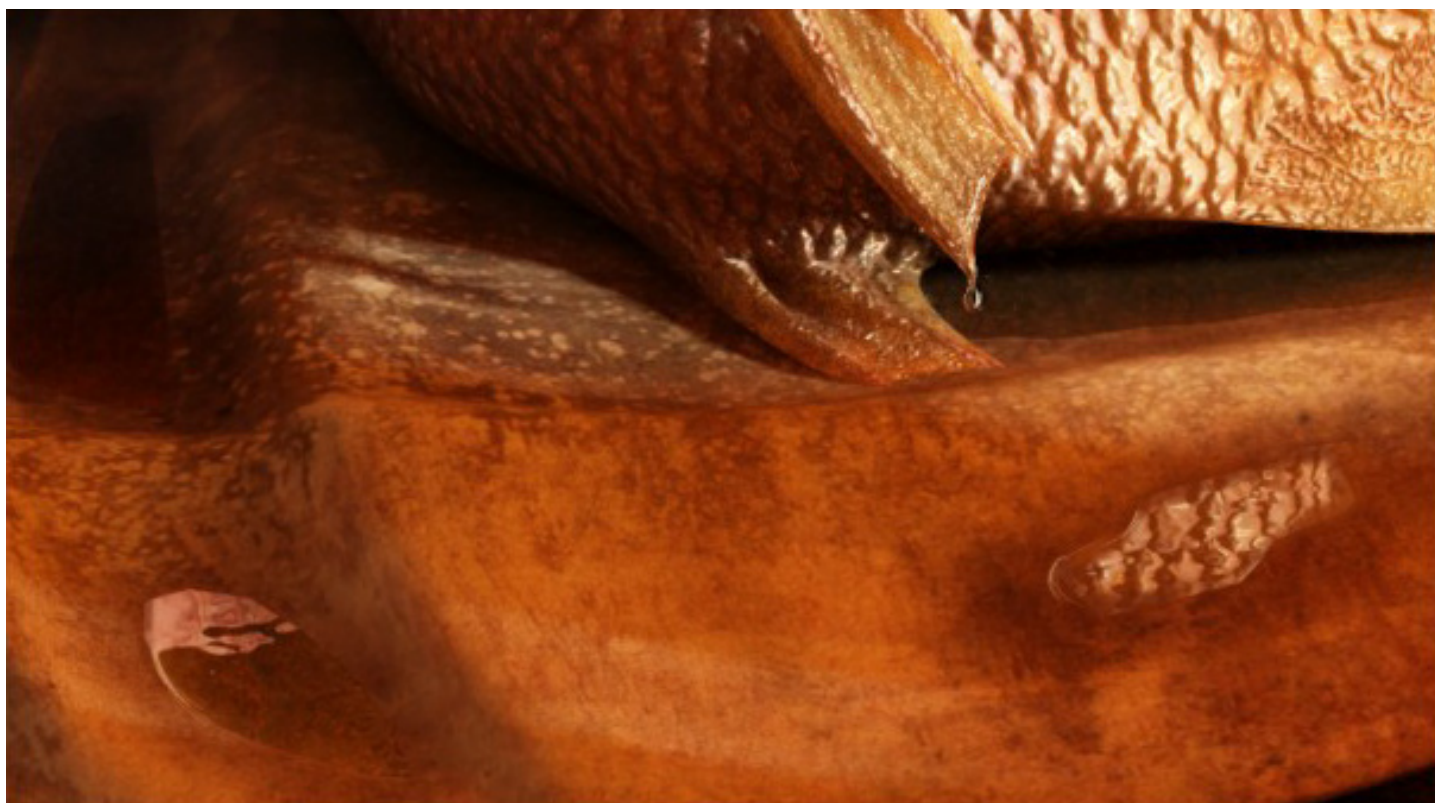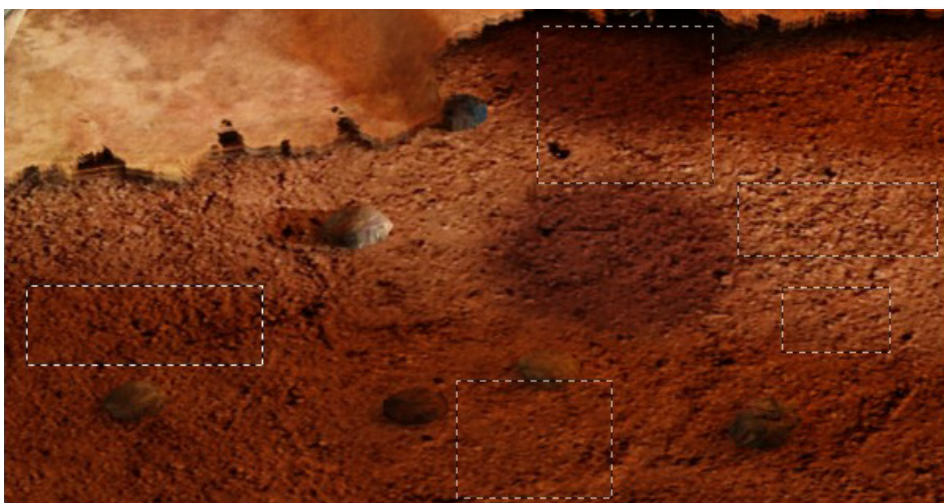
lighting

environment

3D

3D Environment Lighting
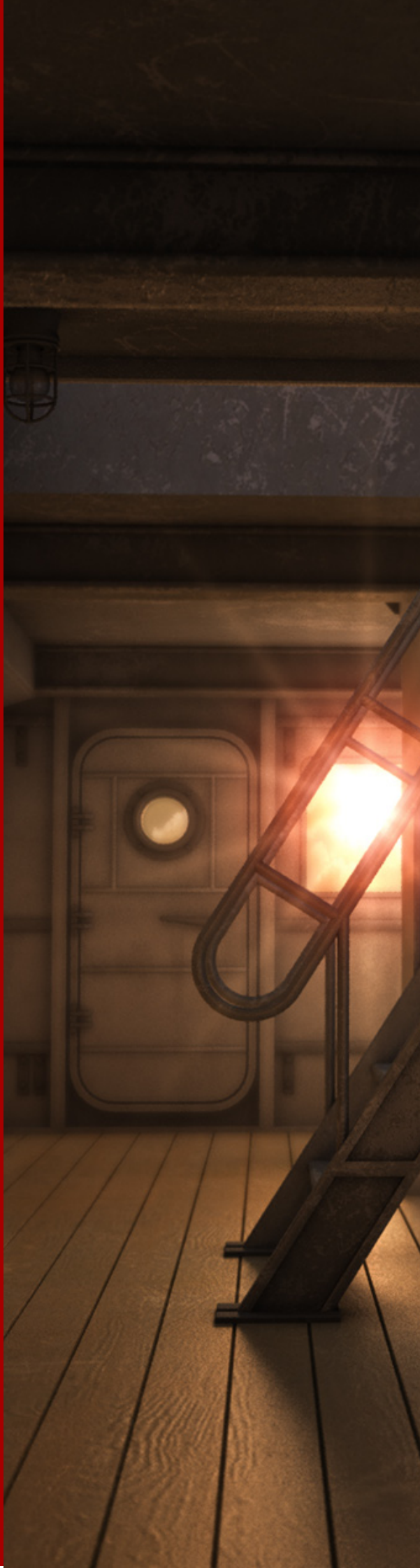
3D Environment Lighting is a new 6 month tutorial series. Over the course of the next six months this series will be detailing techniques to lighting an environment under a number of different conditions. Each month will cover a step by step guide to setting up lights aimed at portraying the scene in a specific manner. The various tutorials will be tailored to specific software packages and each will aim to show a comprehensive and effective way of lighting an interior of a ship that includes both natural and artificial light. These will include a sunny afternoon, sunset, moonlight, electric light, candle light and finally a submerged submarine light.

This Month :

Natural exterior lighting
Sunset

"Render your tests with your master camera at low-res and do your lighting, posing, texturing as usual."

lightwave

ADVANCED
VIEW CAMERA
TUTORIAL FOR HIGH RES RENDERING

For all of you Lightwave users that need to find an easier way of rendering those high resolution images for print, then this tutorial will show you a handy way of doing just that...

ADVANCED VIEW CAMERA
TUTORIAL FOR HIGH RES RENDERING

CREATED IN:

Lightwave 9.2

Although Lightwave is a pretty neat program, you might run into some problems from time to time, especially if you need to render images for print purposes. That's because of the memory management in Lightwave. If you do animation, Lightwave usually works like a charm, but if you need to go for a larger sized image then the layout part of the program is sometimes not able to start rendering because there isn't enough memory available for the segment buffers or to subdivide the object often enough to hide polygon edges.

As I often need to render images for double-spread pages in magazines or posters, I was keen to find a solution - some kind of trick to finally make Lightwave render my images. Here's what I came up with...

The two major factors which bring Lightwave into trouble are too many pixels which need to be rendered and, apart from too many high resolution image maps, too many polygons. I'll first describe a way to overcome the image size problem and then show you two ways which might work in order to reduce the amount of polygons.

So far, you could try to lower the segment memory or use limited render areas to avoid any error messages and finally get your render started.

But even then, Lightwave might refuse to do the required task. It seems that even a small limited render area needs the buffers for the whole image size. This way it's impossible to go for any decent high resolution image.

The introduction of the advanced camera finally gave users a new way which is rather easy to set up, and lets you render each resolution you might want to go for. Apart from Photoshop and a calculator, there's nothing you will need except from Lightwave 9 or higher. The concept is to copy the behaviour of a photographic camera to render several smaller images which are then stitched together in Photoshop. As we aren't rotating the camera to look at all those smaller render areas, there won't be any distortion as the perspective isn't changing. So the image parts will perfectly match up without any seams or overlapping areas.

If you ever needed the quality of an 8" x 10" film in regular photography, but only owned a 4" x 5" film back, then you could have shot 4 exposures on 4 sheets of film, changing the position of the standard back for each shot. If you worked precisely you would have exposed the same film area as for an 8" x 10" film. Afterwards, the scans could have been recombined to show the whole view, minus the borders of the film.

Another major advantage of this render tutorial is that you'll be able to use Worley's FPrime 3.01 - probably the most useful plug-in ever made for Lightwave!

So, here we go...

THEORY

Work like you always do. Render your tests with your master camera at low-resolution and do your lighting, posing, texturing as usual. If you feel satisfied with everything, then divide your total image area into several smaller chunks (do this in your head, first). If you need a final resolution of 10,000 by 4,000 pixels, then 10 render areas of 2,000 pixel in width and height should work fine (five in an upper row, five in a lower one). With 9,000 by 6,000 you could try 6 areas with 3,000 pixels in width and height.

It's not necessary to render squares. So an image of 6,000 by 2,000 pixels could be split up into two pieces of 3,000 by 2,000 pixels. The only point is that Lightwave is able to render the smaller areas without complaining. Keep in mind that, if you have access to a render farm, you might want to

reduce the image size of the render areas even further (increasing the amount of render areas) to have enough work for all the render nodes. It would be a petty not to use all the available render power. Just take care that you can divide your overall resolution that you want to go for by the number of segments in the vertical and horizontal direction and still have an even number.

HERE'S AN EXAMPLE:

Final resolution: 9,400 x 6,700 pixel
Possible amount of small render areas:
3 x 2
Resolution of small render area:
9,400 pixels / 3 = 3,133.33 pixels (bad)
6,700 pixels / 2 = 3,350 pixels (good)

In order to get proper results, multiply 3.134 pixels by 3 and use the result as your new width for the Master camera. In this case, 9,402 x 6,700 pixels will give you a good start.

As the next step, clone your Master camera and name the clone "View camera". The resolution is then set to 3,134 x 3,350 with some minor adjustments to the field of view. The miracle now is that we won't need to rotate the camera to look in all areas which our Master camera covers; a null object, in the form of a grid, will do the trick for us without any movement of the camera itself. The only movement is turning the camera button from classic to advanced.

STEP-BY-STEP GUIDE TO SET UP THE CAMERA

1. Set-up the Master camera's resolution as explained previously (Fig.01).

2. Clone your Master camera. Rename the new camera, e.g. View camera. Change the Width of the View camera to the fractional amount, as explained previously, e.g. 3,134 pixels (Fig.02).

3. Change the Lens Focal Length or Zoom Factor button to Horizontal FOV. Memorise the displayed angle (Fig.03).
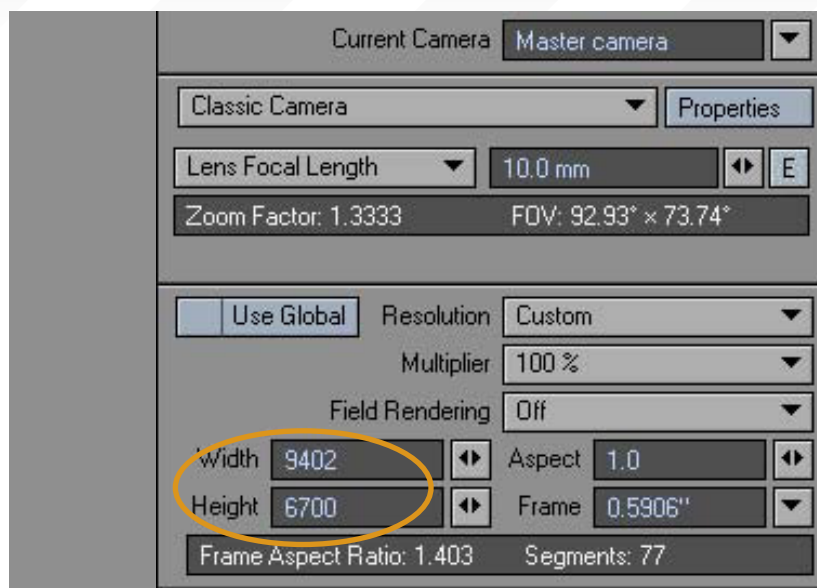
Fig.01
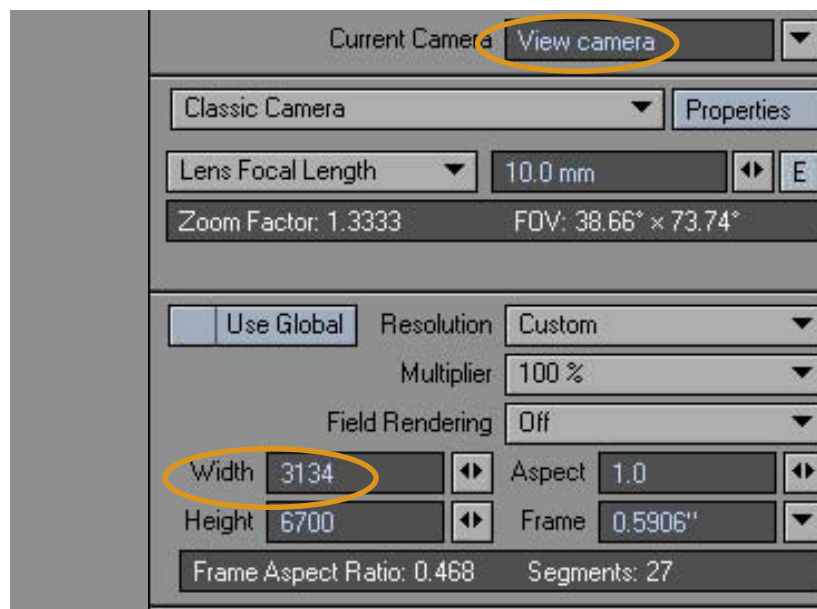
Fig.02
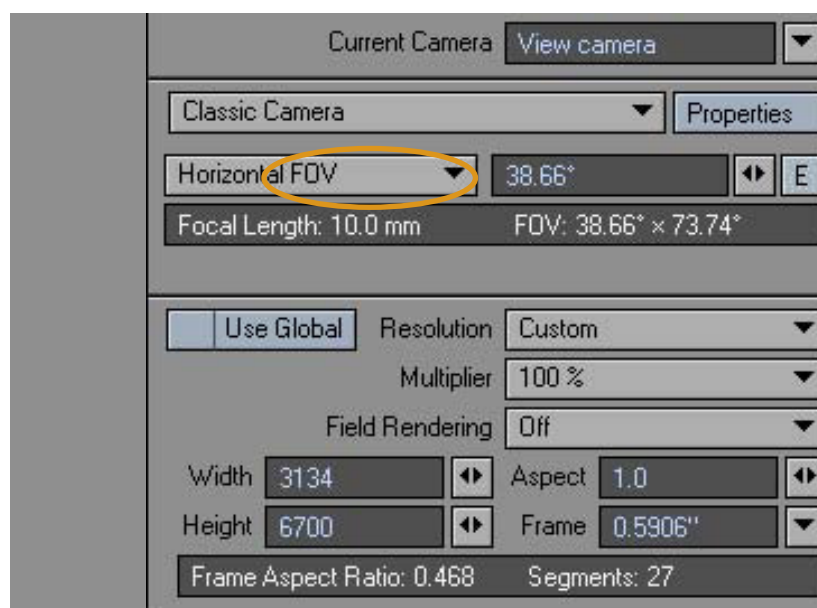
Fig.03

4. Change the Height of the View camera to the fractional amount, as explained previously, e.g. 3,350 pixels (Fig.04).
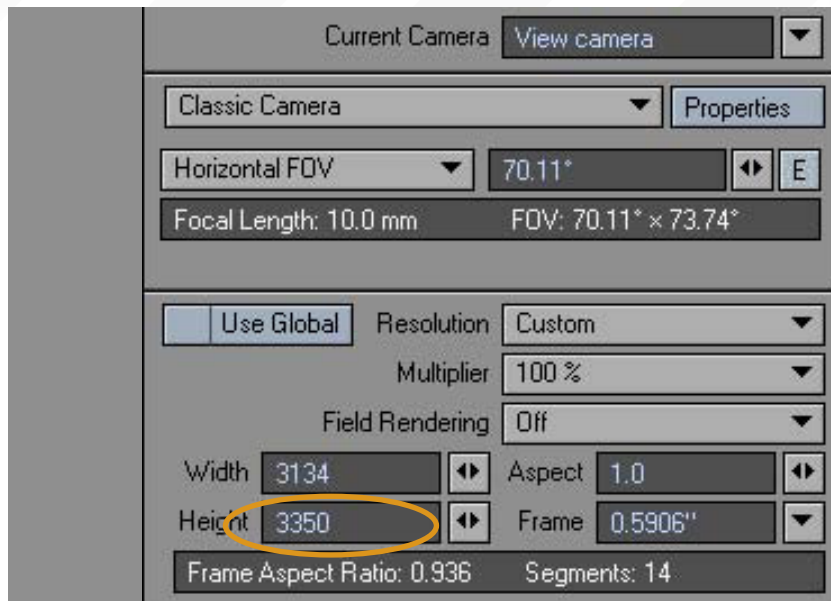
Fig.04

5. Replace the angle in the Horizontal FOV entry field with the memorised angle (Fig.05).
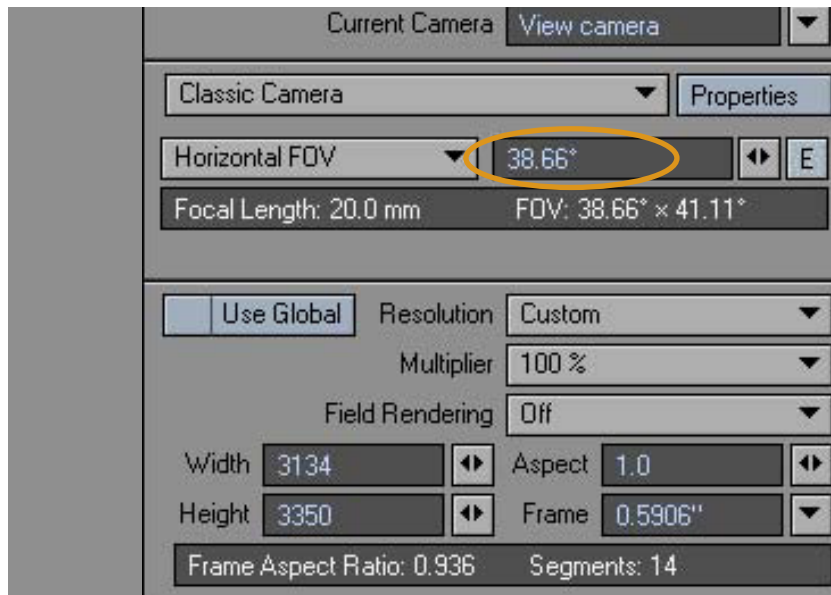
Fig.05

6. Do a quick test render, either by disabling all raytracing options or choosing a lower resolution (Multiplier at 50% or 25%, or both).

7. Create a Null object. Use the edit button to get all the options. Rename the Null to "Lens plane", set Shape to Grid, Axis to Z, and leave Scale at 1m (Fig.06).
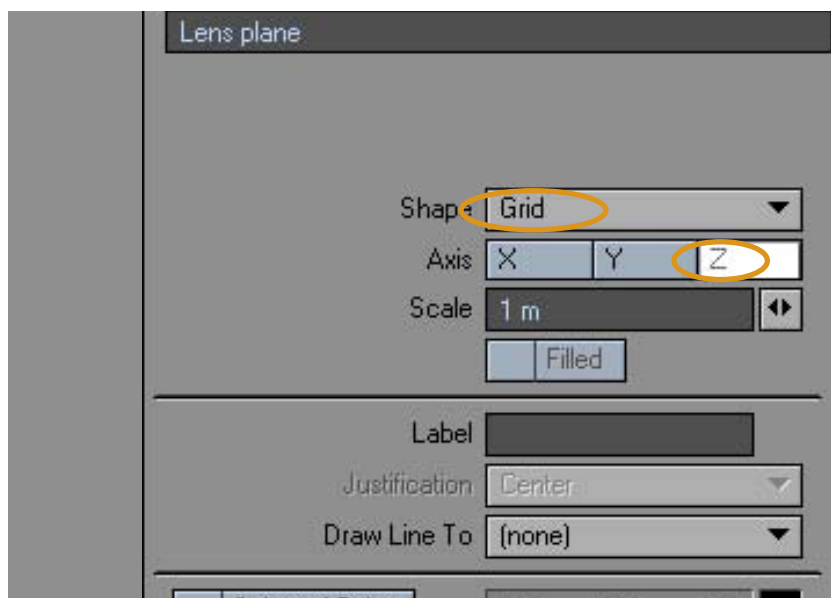
Fig.06

8. Parent the Lens plane to the View camera. Reset all Position and Rotation values of the Lens plane to 0. Disable X, Y for Position and H, P and B for Rotation to avoid any unwanted changes (Fig.07).
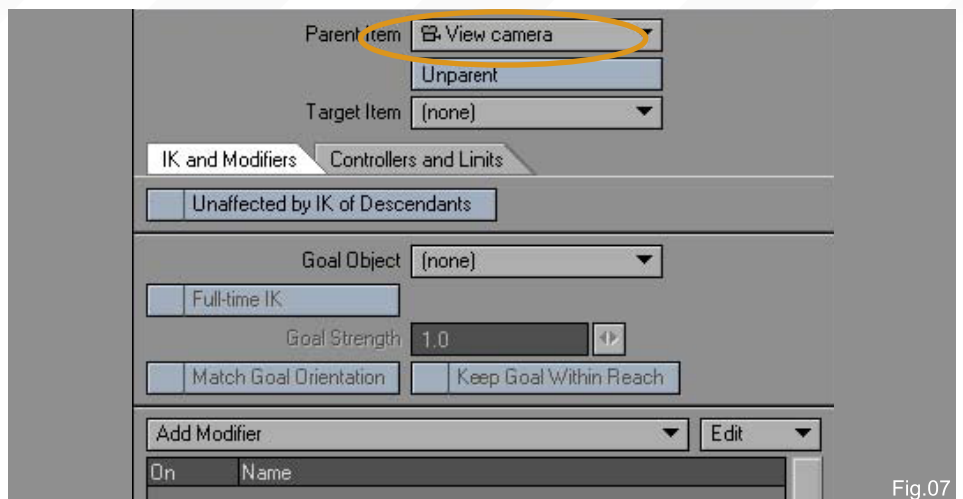
Fig.07

9. Move the Lens plane on the Z-axis for as long as it fills the image's width. This is necessary to match the area actually rendered by Lightwave in the neutral position of the Lens plane with the area you can see in the camera view.

The next step is to use trigonometry to calculate the exact position of the Lens plane on the Z-axis (Fig.08).
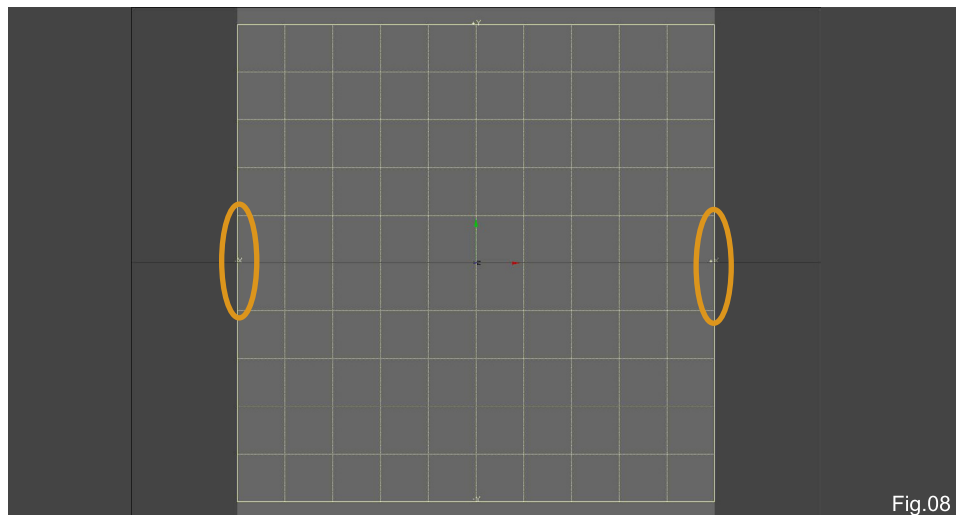
Fig.08

10. Memorise the angle from the Horizontal FOV entry field and divide it by 2. Get your calculator. Get the tangent of this angle, e.g. 19.33° (38.66° / 2). In this case, the result is 0.350782938. Get the reciprocal value of this number (x -1). In this case, the result is 2.850765787.

Divide this number by 2. The result in this case is 1.425382894. This is the exact position of the Lens plane on the Z-axis.

The Z value, from manually positioning the Lens plane and the calculated value, should be more or less the same. Make sure your calculator is running in the DEG mode if there are any problems.

Use the calculated value in the Z entry field. Use as many digits as your calculator shows. Lightwave will then round the number (Fig.09).
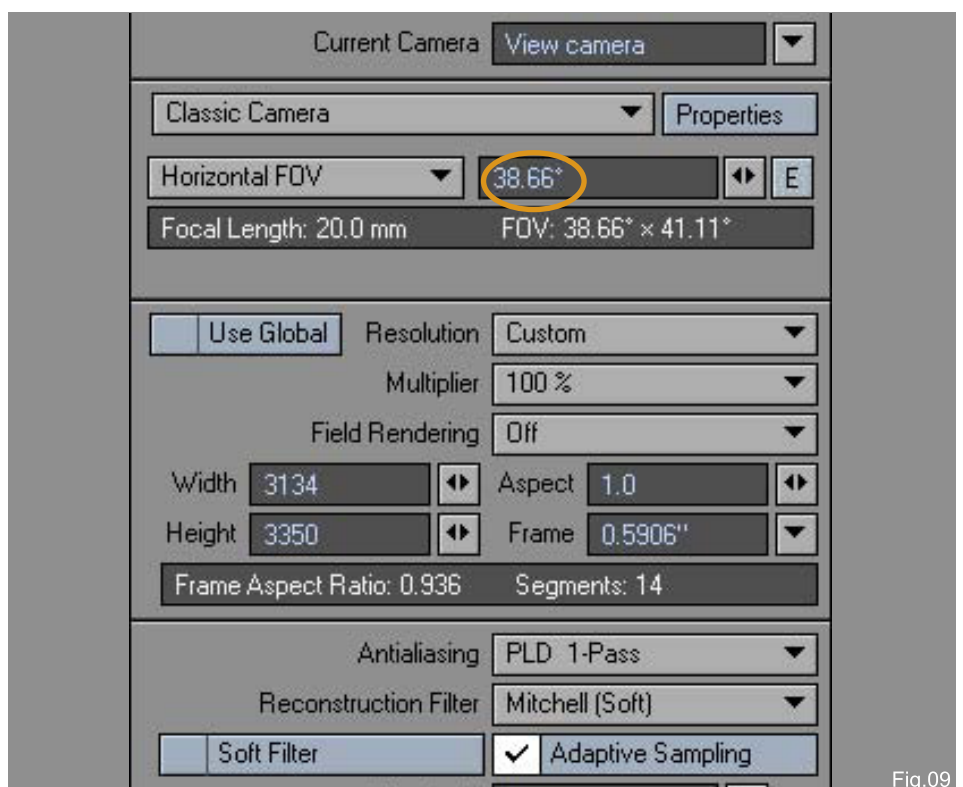
Fig.09

11. Switch the camera type to Advanced camera (Fig.10).
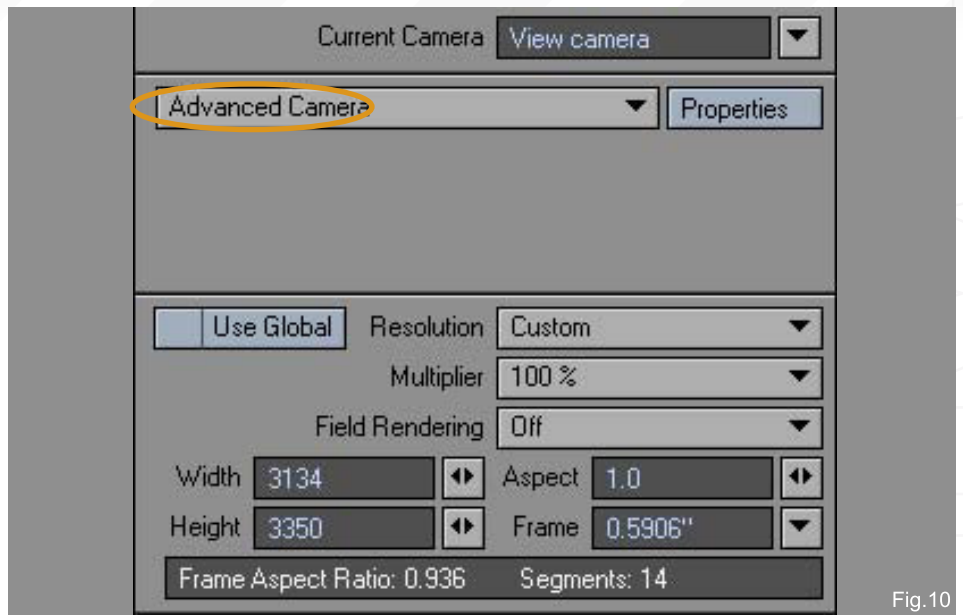
Fig.10

12. Select the View camera as the Ray Start Item. For Ray Direction choose Through item XY. Select the Lens plane as the Item (Fig.11).

13. Make another test render. Both rendered images should be identical. If they don't, repeat the previous steps.

So far, everything has been done to set up your rendering camera. The big difference compared to a real view camera is the centre of the camera. While the centre of the real camera is somewhere in the centre of the lens, Lightwave's view camera centre is in the film plane/camera position. Although we called the Null object "Lens plane", it works more like a mask in front of a camera. For our purposes it doesn't matter, but compared to a real photographic camera that's a big difference.

The only step left now is to render each segment...
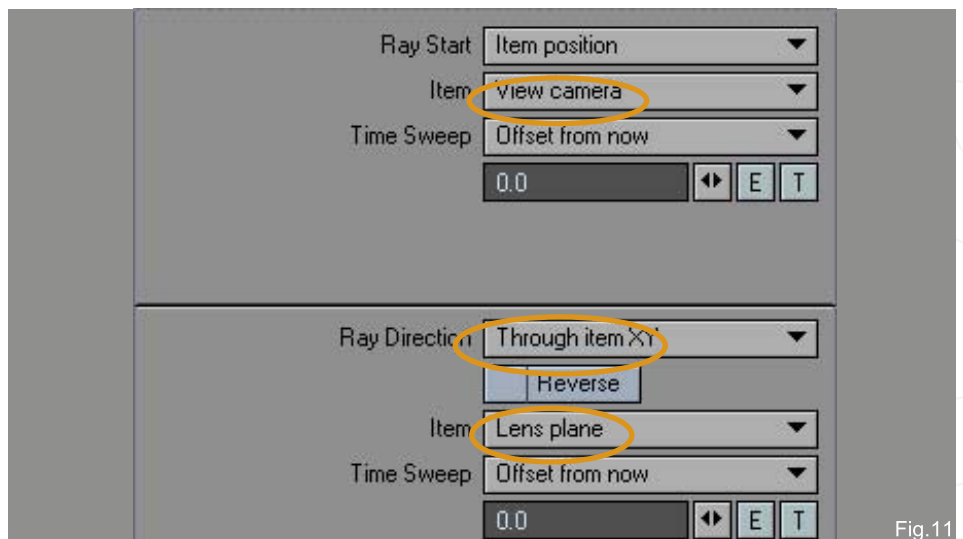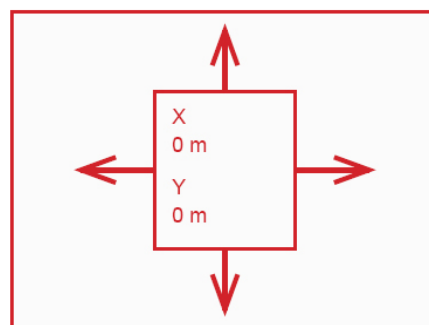
14. In our initial example there are 6 single areas. To render the left column set the X value of the Lens plane to -1m. For the centre column leave it at 0m and for the right column set it to 1m.

For the upper row it's a bit more difficult. Divide the Height of the View camera by its Width and

Fig.11

Fig.12

then divide it by 2. In our case, 3,350 / 3,134 / 2 = 0.534460[...].

So you will need to move the Lens plane either up on its Y-axis to 0.5344m, or down to -0.5344m. Although the Y-movement will always depend on your image aspect ratio, the X-movement will always be 1m.

With an uneven number of horizontal image areas, it will behave like: -2m, -1m, 0m, 1m, 2m... For an even amount, it is like: -1.5m, -0.5m, 0.5m, 1.5m... (Fig.12).

15. I strongly recommend to keyframe the movement for the Lens plane. If you set everything up at frame 0, then start at frame

1 with the render area in the upper left corner and then move towards the right before jumping down one row, and repeat keyframing the movement from left to right.

This way you'll have it pretty easy afterwards in Photoshop to arrange the image tiles in the correct order. Writing a script to do this automatically might be a good idea if you need to render several passes. Photoshop will then assemble the image within a few seconds.

"KEEP IN MIND, ALL NUMBERS IN THIS TUTORIAL ARE ONLY EXAMPLES!"

It's necessary that you understand the principal of how to subdivide the full image area and how to move the Lens plane to all positions you need to create this puzzle, which then can be put together in any retouching program.

Hopefully you won't encounter any problems by following my steps. In general, the way I described looks similar to using the Limited Region in Lightwave. The crucial difference is the amount of memory each render will take.

By following the way I described it should be you who's finally smiling, and not Lightwave's render buffer!

THEORY

The recent steps should have solved all the problems concerning the image size. To enhance Lightwave's capabilities in rendering huge scenes, it might be necessary to reduce the amount of polygons Lightwave has to deal with.

If you are working with polygon objects you might want to delete those objects from the scene which can't be seen in the render area. Problems might occur if these objects turn up in reflective surfaces or cast shadows within the rendered image. So you need to check before

whether this is suitable or not.

With Sub-patch objects it's a bit different. Often they are so well defined that you wouldn't see a difference between the shadow or reflection between the sub-patch cage at level 1 or higher levels. So to reduce the amount of polygons we are going to subdivide only those polygons which are positioned in the render, and leave those out of the field of view untouched.

STEP-BY-STEP GUIDE TO SET UP THE OBJECTS

Fig.13

Fig.14

Fig.15

1. Clone your View camera. Call the new camera "Sub-patch camera" (Fig.13).

2. Open the Motions Options. The Sub-patch camera needs to be targeted at the Lens plane. Thereby the Sub-patch camera always looks at the same spot, like the View camera (Fig.14).

3. Set the camera type back to Perspective camera (Fig.15).

4. Adjust the Lens Focal Length of the Sub-patch camera so that it covers a bit more space
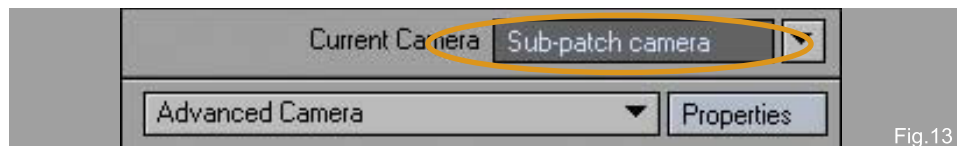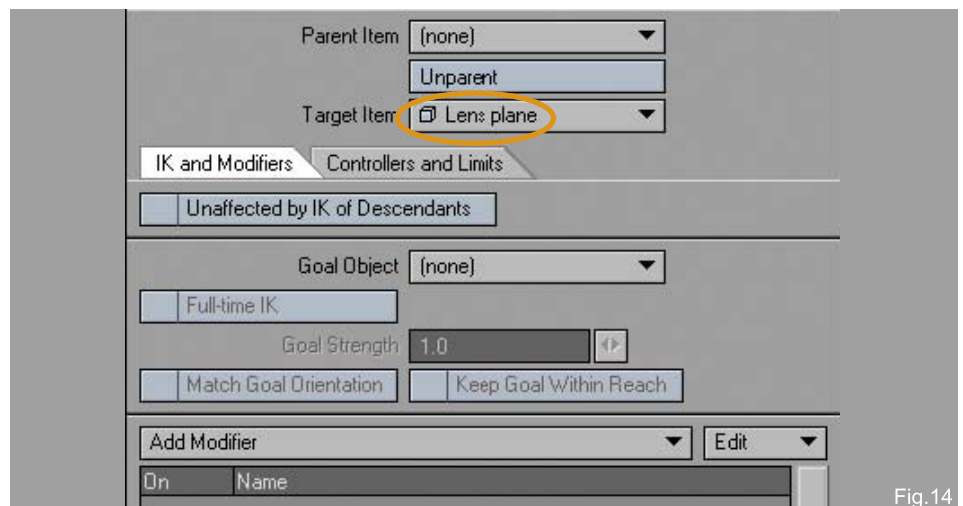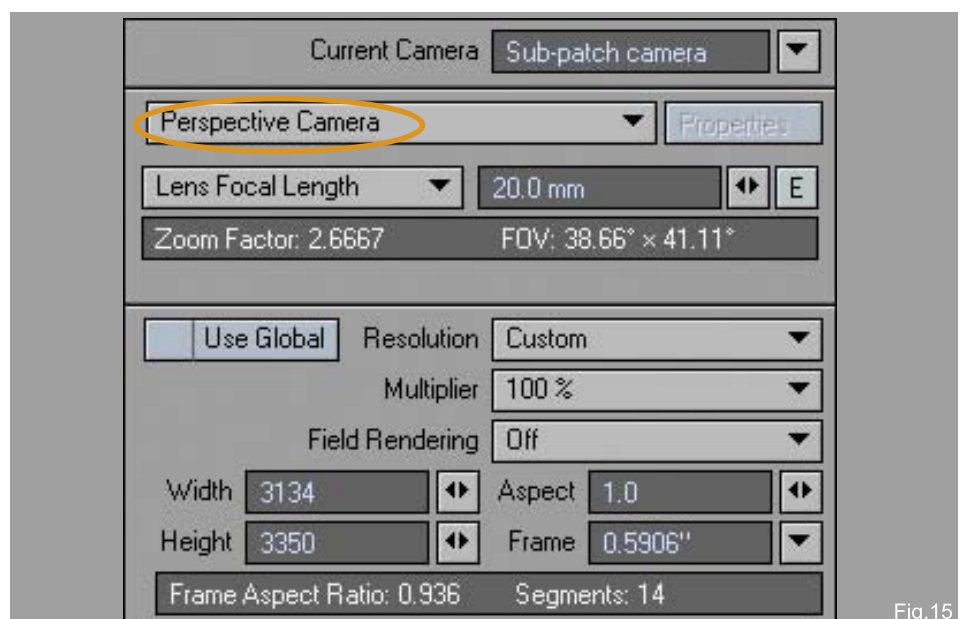
than the View camera. You can do this easily by generating a box in modeller with the same amount of polygons in the X and Y axes as tiles you want to render your image with. Keep the Z-depth of the Box at 0. You'll end up with a flat polygon object. Just place this object in layout and parent it to the Master camera. Reset Rotation and Position to 0 and move the object on its Z-axis until it's visible in the Master camera. Scale or stretch the object until it perfectly fits into the Master camera's field of view. The grid space which represents one of your render areas should be fully visible in the Sub-patch camera plus a bit of extra space around it (Fig.16).
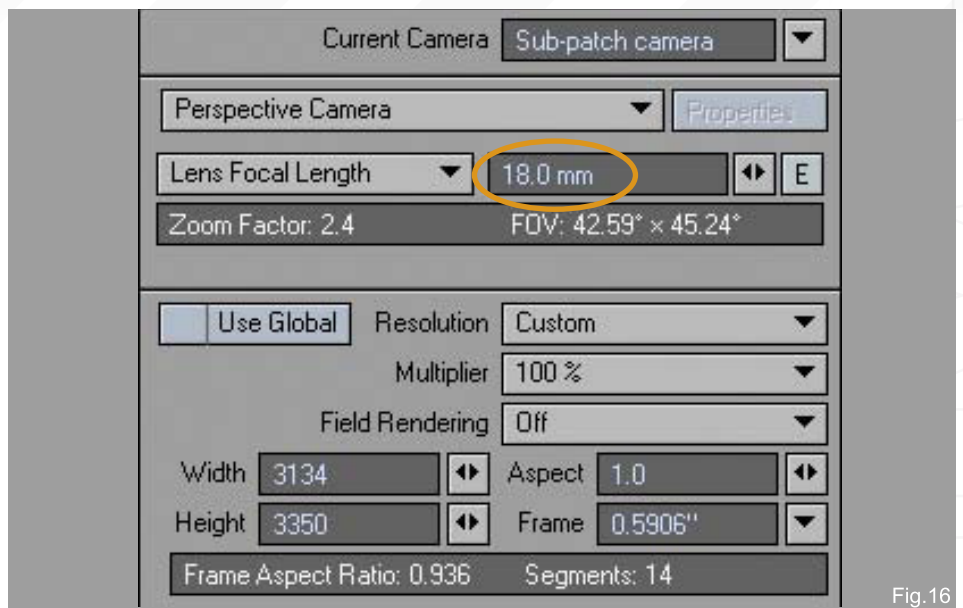
5. Select one of your main objects. Open the Object Properties, choose the Geometry folder, change Render SubPatch to Per Polygon Level, and click on the T (Texture) button (Fig.17).
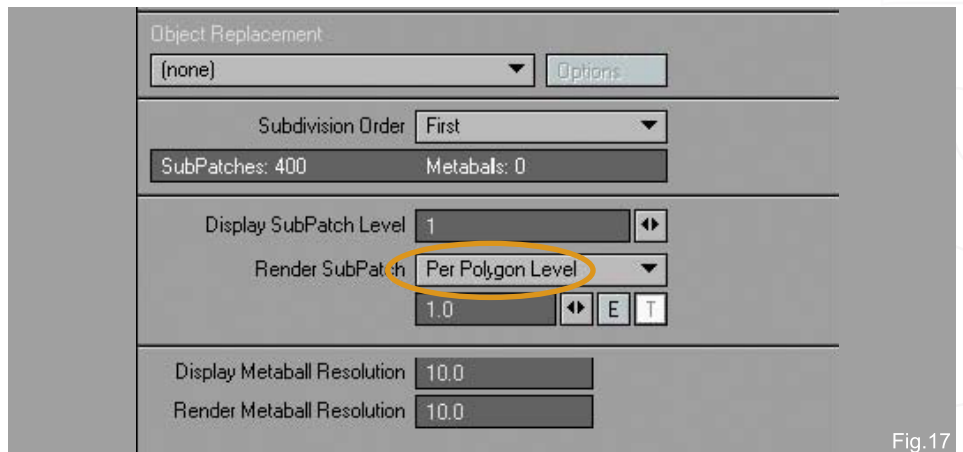
6. Select the image layer. For Projection choose Front; as an image load up a pre-created Photoshop image. The image should be white all over, about 1,024px by 1,024px and - very importantly - have a black border, about 2-5 image wide, at all sides. Set both the Width Tile and Height Tile to Edge (Fig.18).

Fig.16

Fig.17
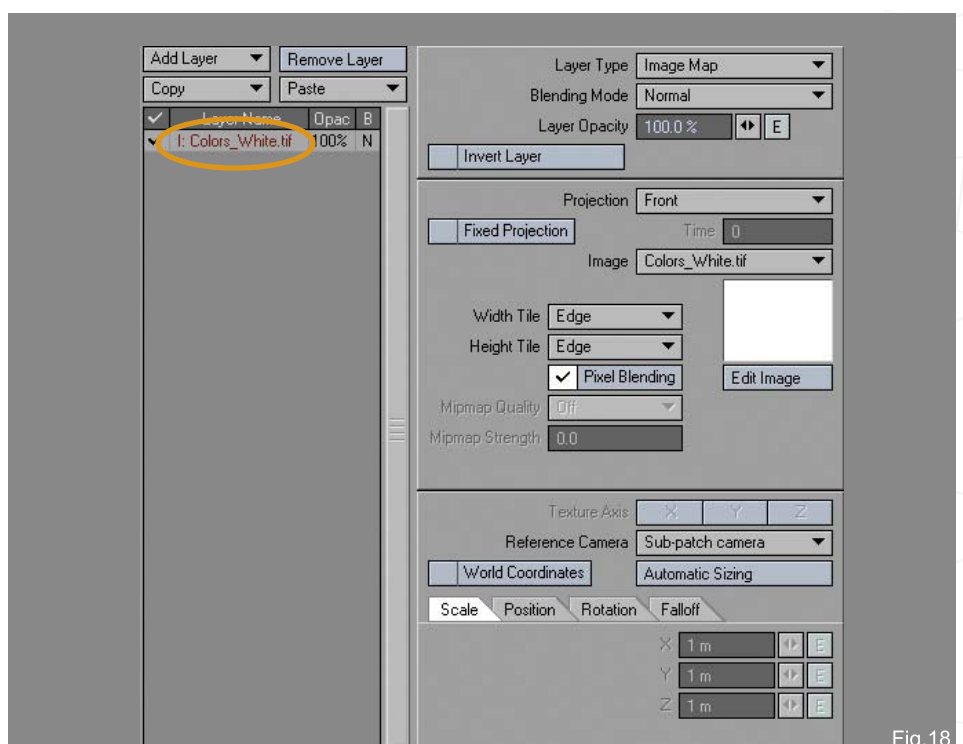
Fig.18
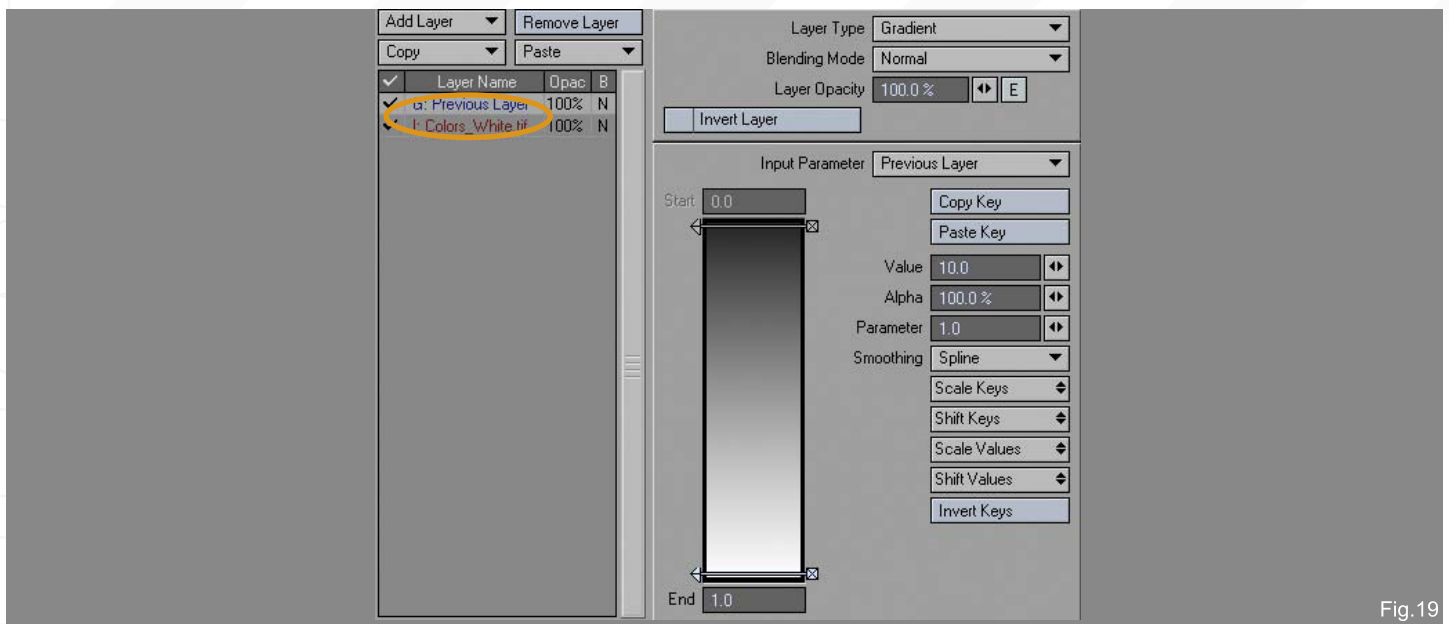
Fig.19

7. Add a Gradient Layer. As the Input Parameter choose Previous Layer. You need two keys: one at Parameter 0.0 with the Value 1, and another at Parameter 1.0 with the sub-patch level at which you actually wanted to render your object in the first place.

Switch over to the Master camera. Set the render mode in Render Globals to Wireframe and do a quick test render. Only the area within the Sub-patch camera's view should be pretty dense (highly sub-patched) while the other areas of your object should appear like in modeller. They are smoothed at level 1, but no additional geometry has been added (Fig.19).

8. Copy the layers from the Texture Editor - APS - Polygon Level window and paste them in the same window for all your other objects which might cause an unnecessary amount of polygons, as they are outside of the render view of the View camera.

9. If you saved the scene between the different steps with Save Scene Increment - highly recommended - you could render your image with and without the sub-patch trick to see what kind of difference it makes.

In the Render Status panel you can read out the amount of points, polygons and used memory in the scene. I expect the amount of polygons to be at least 50% less, if not even more. The same should be true for the memory.

JUST TWO ADVISES AT THE END:

a) Use the Save Scene Increment function. It will save you a lot of trouble one day when you are able to go back to a further stage of your work.

b) Set the Segment Memory Limit as high as needed to render each part of the image in one thread. With high polygon sub-patch objects you'll lose an enormous amount of time during rendering due to Lightwave updating the geometry for Antialiasing.

Hopefully this tutorial will come in handy one day for you and I hope the little bit of trigonometry didn't confuse you too much.

Cheers and happy rendering!

HIGH RES RENDERING

For more from this artist visit:
www.thomasmangold.com
Or contact:
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JAC3D

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ConceptArt "Walker" JAC3D
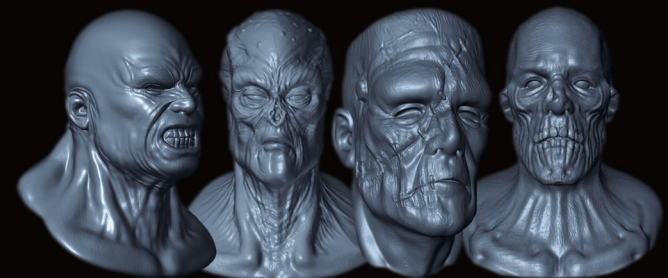
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lightwave
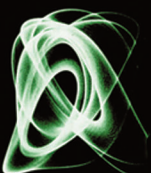
In this part of our Lighting tutorial we will see how you can fake the Radiosity effect to cut down hugely on rendering times! ...

COMPLETE GUIDE TO LIGHTING

"THIS TYPE OF KNOWLEDGE IS VERY VALUABLE WHEN YOU DON'T HAVE GREAT RENDERING POWER AND YOU WANT TO RENDER A COMPLETE ANIMATION."

PART 5 : DAYLIGHT ADVANCED

COMPLETE GUIDE TO
LIGHTING

PART 5 : DAYLIGHT ADVANCED

CREATED IN: Lightwave

There are many ways to attain quality daylight setups inside Lightwave. In the previous chapter (part 4), we made use of radiosity in order to attain it. During this chapter, we will learn how to fake it. This will allow us to lower render times and maintain the quality of our renders. In order to do so, we will explain new work-flow techniques and tools used for lighting and rendering.

THE BENEFITS OF FAKING RADIOSITY

Lower render times. Faking radiosity requires learning more lighting tools inside Lightwave. The more you practice, the better the results you will get each time. This type of knowledge is very valuable when you don't have great rendering power and you want to render a complete animation. Situations such as this one happen very often at small studios. Small studios have tighter deadlines, and if they want to compete with bigger companies they still have to produce great lighting results. Therefore, an artist who knows how to fake radiosity is a valuable asset inside a studio with limited resources (Fig.01).

Control. Furthermore, faking radiosity gives you more tweaking control.

Fig.01 - An efficient lighter is a valuable lighter

Lighting is like a mathematical equation: you can quickly use formulas to calculate a result, as with radiosity. When you apply a formula, you have less variables to control and balance. By faking radiosity, you can control

more variables. Having more variables and parameters to control has its benefits; it expands the domain of the lighting situations you can achieve. It also has its complications: the more variables and parameters you have to control, the more difficult will it be to find a balance. Keep your patience with this, because in any art form practice makes the master (Fig.02).

Fig.02 - Faking radiosity requires of practice

APPROACHES FOR FAKING RADIOSITY

One light at a time. This is probably the best and most render-time efficient way to fake radiosity. Indirect Illumination makes things look "more real". Such a look relies on the effect of light bouncing inside a scene. With radiosity we can specify how many times light will bounce off

Indirect Bounces 3

Fig.03

surfaces (Fig.03).

If we do not want to use radiosity, we need to "fake" each "bounce area" with a new light. This approach is mostly used for low render time interior lighting setups. It requires a lot of practice and setup time. When each bounce area is faked with a light, you have tremendous control over the look and feel of the final image. However, things can get very complex with a very high amount of lights used in a setup (Fig.04a).

Many 3D users get frustrated early on when they try to learn lighting. They try to attain realistic lighting results by using this lighting approach. Such an approach requires of a very highly trained eye in order to dissect reality into different "layers" of light. It is not likely that beginners will succeed in doing a realistic

Fig.04a - Avoid frustration by following an appropriate work-flow

Fig 04b - Lighting is like a math's equation.

scene by using this workflow. Therefore I would personally recommend using such an approach once you master many tools and other workflow approaches.

Formula lighting rigs. Applying a rig that will work for many types of scenes and objects is a real time saver. While you can be very talented and do lighting rigs that are specific to each scene, having at hand some setups in which you can change the object and hit render definitely helps! Formulas work for a range and domain of possible inputs. Some exterior lighting rigs will work for small objects and not for big arch-viz. Understanding a couple of these "formula lighting rigs" will pimp your lighting skills enough so as to get hired by a 3D company. We will explain some of these setups in this, and the following, chapter (Fig.04b).

GETTING STARTED

For this specific example I downloaded a teddy bear from the free content at www.3dtotal.com. It is located under the "misc" category of their Free Models. The teddy bear object does not come with a plane underneath so you will have to create one. Make it big enough so that its edge will not appear at our camera view

teddy 2.0 by sparky

lwo / 94k
3ds / 117k
max / 136k
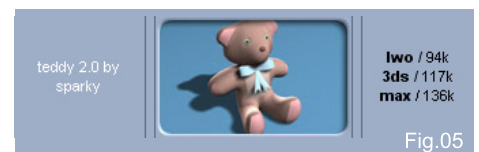
Fig.05

(Fig.05).

CREATING NULL OBJECTS

This Teddy Bear comes with different layers. In order to manipulate different layers at the same time we can make use of Null Objects. You can create a Null object in Layout by going into the Items tab in the main menu. Click on the Null button under the Add section on the left. A pop-up called Build Null Object will appear. The first text-box will specify the name of your Null object. Furthermore, you can give the Null Object a form so it will be easier to recognise in
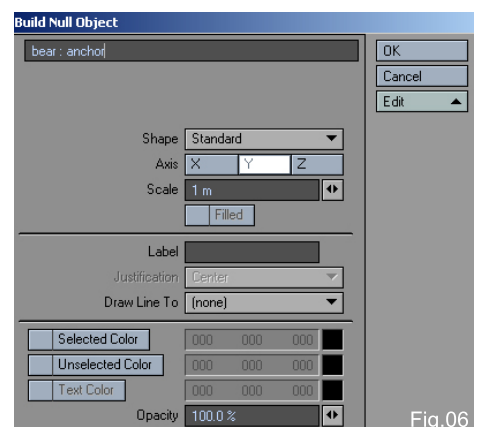
Fig.06
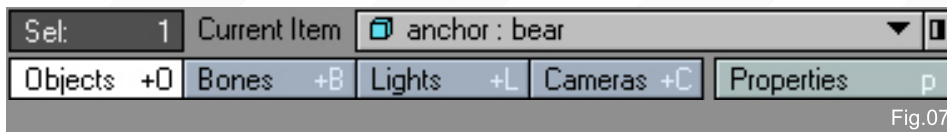
Fig.07
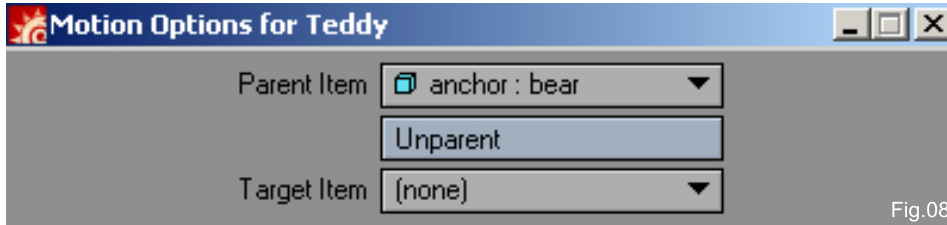
Fig.08
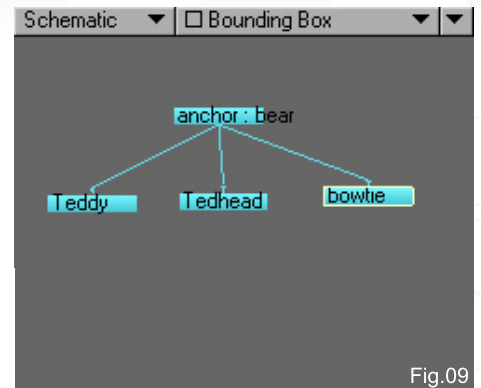
Fig.09

Layout (Fig.06).

Once you click OK, a Null Object will be created in the Origin of your scene. It will appear under the Objects category. You can select it just as any other object inside your scene. You can attach more than objects to Nulls, and it is also possible to attach lights! This way you can make and move a whole lighting rig with just a Null (Fig.07).

PARENTING LAYERS TO NULL OBJECTS

I imported the Teddy Bear Object inside Layout, and positioned it at 0,0,0. This object comes separated in several layers: teddy, ted-head and bow tie. Instead of moving all of these layers individually, you can "parent" them to a Null Object. Parenting attaches one object to another. Therefore, by moving the "parent" object you can move the "child" object. Select the object and press the <M> key. This will show the Motion Options for the selected object. You can specify the Parent Item and Target Item inside it (Fig.08).

USING THE SCHEMATIC VIEW

The Schematic View shows the relationships between elements inside a scene. Layout draws different kinds of lines and arrows to show them. The Schematic View omits geometry. Its visuals focus on the relationship between objects and not their visual properties (Fig.09).

TECHNIQUE 1: AREA LIGHTS

Fig.10 - Lighting with one big area light

Fig.11

a) Using one Area Light. When objects are as small as a box, we can simulate the atmosphere by using a very big Area light on top. This technique works great for simple "product shots". Simple objects are good candidates for such a setup. Start by creating a big Area light, then make it face your floor plane. Since we are trying to emulate the atmospheric light we need to make it big enough so that shadows get softer. Putting an Inverse Distance^2 as Fall-off will also help. Just remember that the bigger the light, the bigger the render time! To get started, don't panic about render times - focus on the quality (Fig.10 and 11).

Fig.12 - An Area Light & Ambient Intensity

Fig.13

b) Using one Area Light along Ambient Intensity. Even with such a setup, objects will cast completely black shadows in areas where the Area light is not hitting directly. Such dark shadows exist because there is no light bouncing back from the floor. Remember we are not using radiosity! There is no "automatic" indirect illumination. Making an ever bigger light will not help enough. However, we can compromise the quality and use some Ambient Intensity to brighten up those dark shadows. Keep in mind that Ambient Intensity is a "cheap fix" for indirect illumination. It helps a little whilst keeping render times low (Fig.12 and 13).

c) Two Area Lights & No Ambient Intensity. Let's see how to fill in those dark shadows without using Ambient Intensity. If you want to avoid radiosity and Ambient Intensity, you can use other lights to fake the light bounces. Which bounce should we first emulate? The less lights we use, the lower the render time, and since non-radiosity renders are focused on lowering render times, we should use the least amount of lights. Therefore, we should start emulating the most obvious light bounces. These are bounces that greatly affect the overall image, and normally come from the brighter and biggest surfaces. The main indirect lighting source for this specific scene comes from the floor. We can use an Area light underneath our floor to emulate the indirect bounce that the floor would produce in a real life situation. **Remember:** do not forget to exclude the floor layer/object from this second Area light! With it, light will be able to pass through the floor and illuminate our object directly (Fig.14).

How bright should this light be? In the real world, energy is not lost, it is transformed. Some light is absorbed by surfaces, whilst the rest is bounced back. The amount of light that is bounced back will not be greater than the initial light hitting a surface. Therefore, the light intensity of the lower light should be less than the intensity of the top light. In this situation, the colour should be the same, since we are using just grey on our surfaces: blue in, blue out. If you want to get fancy, you can lower the Value of the light - but that is up to you to tweak and practice (Fig.15).

This type of faked bounce is efficient, but not very effective. There are areas in which even the bounced Area light is not reaching. A good example is the chin of the bear - it is not getting enough light from underneath. There is a simple solution for this type of situation. We are not rendering the front-part of the object for this specific example, so we can therefore compromise the lighting on the back to get a better result on the front. By changing the
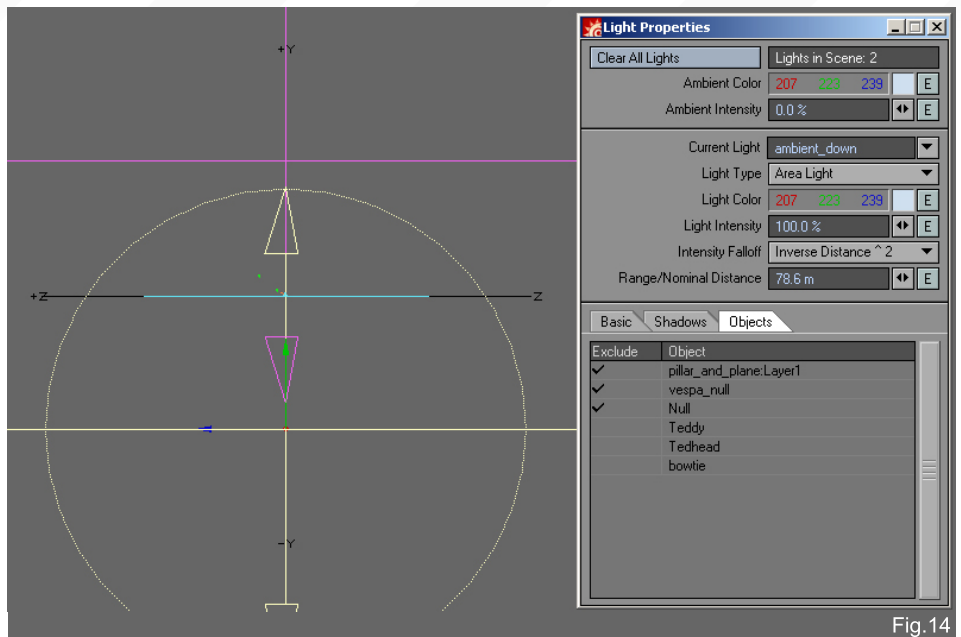
Fig.14

Fig.15 - Two Area Lights

Fig.16 - Second Area Light with Inclination
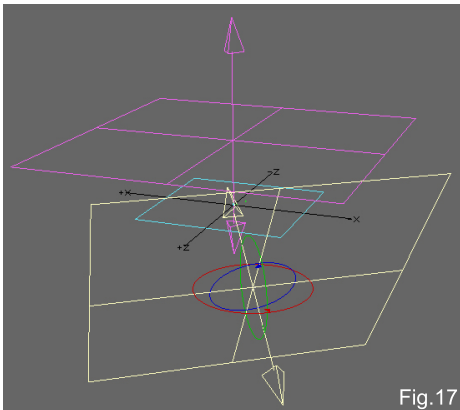
Fig.17

Fig.17 - Inclination at the same angle as

the Camera View

Fig.18 - No radiosity: 2 Areas Lights & Ambient Intensity

Fig.19 - 3 FG Radiosity: 1 top Area Light

angle of the light, we could better illuminate the frontal part of the bear. Figure 17 shows the tweaked and inclinated area light.

c) Two Area Lights & Ambient Intensity. If this fake area bounce is not enough, we can always add a little Ambient Intensity. I personally use this value between 5% and 35%: it will make the overall image brighter, including its shadows. In this lighting setup, the Ambient Intensity is set to 15%. It has the same colour as the Area Lights. Usually, the better job you do at faking bounces with lights, the less Ambient Intensity you will require (Fig.18 and 19).

Fig.18 was produced with no direct lighting, whilst the other, Fig.19, was produced with Final Gather Radiosity with 3 bounces, using only the top light (and Lighting Intensity set to 30%). If you watch carefully, the render without radiosity is even smoother than the one with radiosity. The render with radiosity however took a few minutes more to render.

d) Wrap-up. We end up using two big Area lights with inverse distance fall-off. Furthermore, the lower Area light was aligned so it was able to reach more of the frontal part of our model. That plus 15% Ambient intensity has given us a softer look. Our lighting is looking very similar to what we would get from a radiosity solution.

e) The good. For this specific scenario, faking radiosity was not a difficult task. With the addition of more lights we have more variables to tweak. This variable increase is a double-edged sword: the more variables you need to control the lights, the more complicated it gets. However, the more variables you get to understand AND CONTROL, the more accurate your lighting will be in relation to your vision.
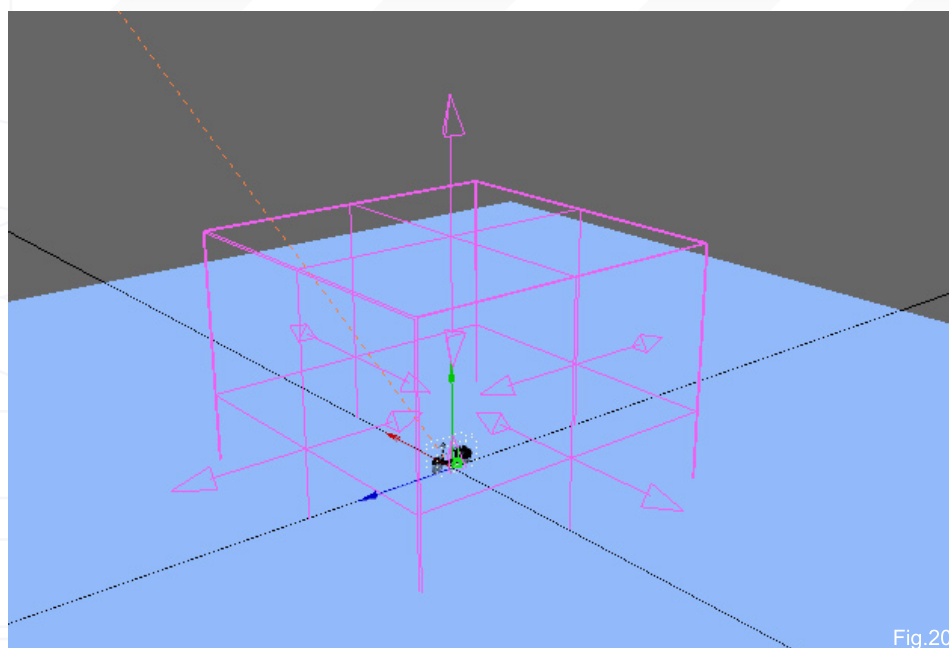
Fig.20
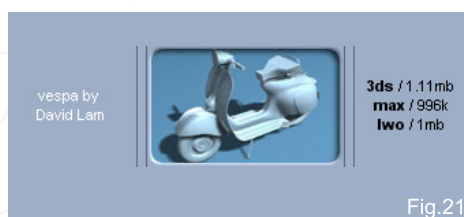
Fig.21

Fig.23

Fig.22 - Render of Area Light Cube

f) The bad. This technique is not effective when we are dealing with more complex objects. We had to change the angle of our lower light in order to get more light hitting the chin of the bear. The more complex the object, the less viable this method becomes, since there will be more polygons blocking upper parts of the model. What happens if you want to make a 360 pan? Since the light was focusing on what we can see, we didn't put too much attention on the back part of the bear. This, and other, complications could be solved with the following technique...

TECHNIQUE 2: THE AREA LIGHT CUBE

a) Using 6 Area Lights. Previously we had just two Area Lights: one was on top, whilst the second one was used to fake a bounce coming from below. We can take this same principle a bit further. By adding an Area Light on all orthographic sides, we can make a whole "light box". This will illuminate our object from all sides; top, bottom, front, back, right and left. That equals a total of 6 Area lights (Fig.20).

A "light box" lighting setup will produce soft and smooth shadows. Its lighting could emulate Backdrop Radiosity to a certain degree. This is definitely helpful for lighting more complex objects, such as this Vespa Bike downloaded from www.3dtotal.com. You can find it by going to Free Stuff > Models > Vehicles (Fig.21).

The bigger the Area lights, the softer the shadows. The bigger the Area lights, the longer it will take to render them. Area lights in this setup do not use any Intensity Falloff. Putting all lights to the same Light Intensity will allow an even lighting setup. **Remember:** do not forget to exclude the floor object from the lower light (Fig.22 and 23).

a) Using 6 Area Lights & One Distant Light. The light box gives us the smooth lighting we are looking for. It is now time to emulate the Sun. It is a healthy habit to first emulate the Sun with

a Distant Light, and then to try out more render intensive light types. This will allow us faster test renders in which the focus will be the light inclination angle (Fig.24 and 25).

b) Using 6 Area Lights, One Distant Light & Ambient Intensity. The result is nice, but perhaps too contrasted. We can fix this with some Ambient Intensity. For this specific scene, I used 35% Ambient Intensity with the same colour we are using for the Sun. This will add a warmer look to the render, which is normally caused by the indirect bounces coming from the Sun (Fig.26 and 27).

c) Using 6 Area Lights, One Distant Light, Ambient Intensity & Radiosity. So far we have created a lighting rig without Radiosity. That

Fig.24 - Adding a Distant Light as Sun

Fig.25

Fig.27

Fig.29

Fig.26 - Adding Ambient Intensity
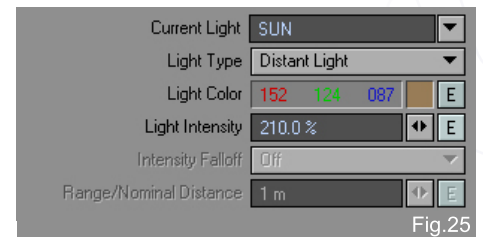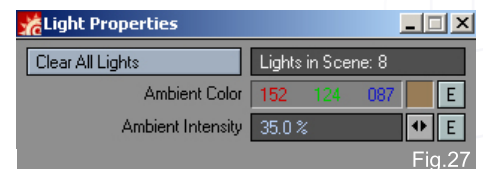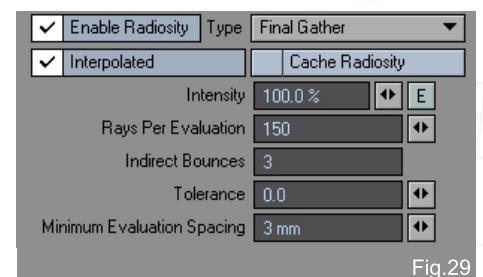
Fig.28 - Adding Radiosity

doesn't mean that the rig is not suited for radiosity. This work flow allows you to add radiosity at the end of the process. That is, of course, if you wish to do so (Fig.28 and 29).

The addition of radiosity to a non-radiosity scene will most probably make the whole scene get "burnt" by lighting. If such a thing happens, don't start lowering all the Light Intensities one
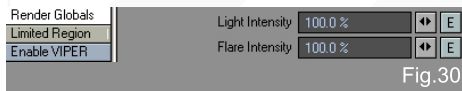
Fig.30

by one! There is an easier and less tedious way to lower the Light Intensities of all lights inside the scene. This tool is located in the Render Globals menu. It is called "Light Intensity". If a "light equation" is balanced, diminishing the intensity will not break the balance of the lighting rig. Balance will be kept! That is the importance of this work flow; when done correctly, tweaking becomes easier (Fig.30).

TECHNIQUE 3: SPINNING LIGHTS

a) What are spinning lights for? We can simulate a wrapping environment by spinning an Area light around our scene. The principle of spinning lights is simple and is frequently used in real life visual effects. Lasers beams used in shows make good use of this principle. These kinds of lasers can spin very fast. By doing so, they create the illusion of wider beams. For our brains, a "moment in time" consists of a very short period of time. This period of time is very short. That is why our eyes are capable of appreciating such blinking and have a sense of "how fast" this movement is (Fig.31 and 32).
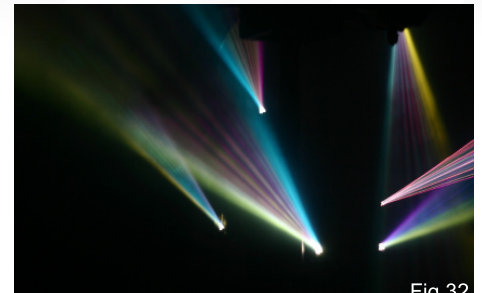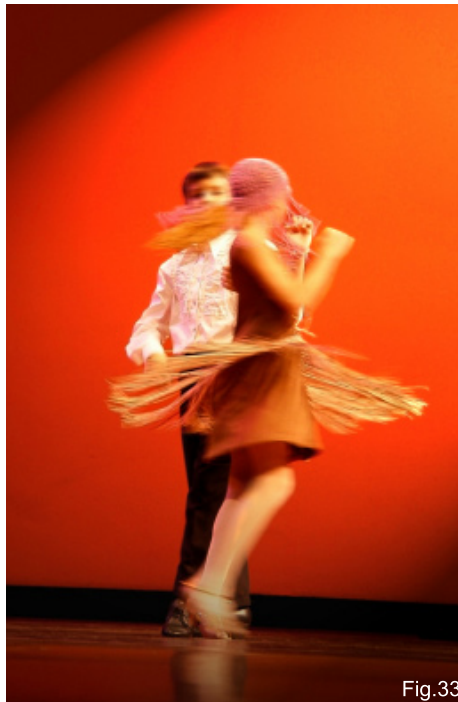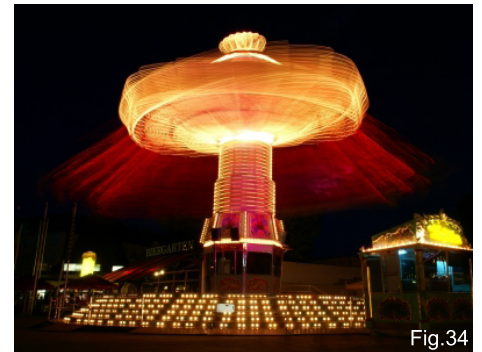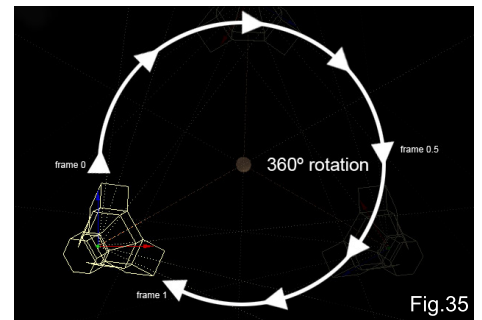
Cameras have shutter speeds. They take pictures of "periods of time". If an object, light or shadow moves whilst the picture is taken, the picture will look blurry. It is not an error of the camera - it is an average light evaluation of a period of time (Fig.33 and 34).

We can take advantage of this principle inside Lightwave. We can spin our CG lights just as laser beams spin in real life. This will allow us to illuminate wider areas with smaller, and less render intensive, lights. We can rotate a spotlight around an object, and illuminate it from all sides. We just need to specify Lightwave to evaluate all of its spin. Lets see how to attain such a setup (Fig.35 and 36).

b) Setting proper object dimensions. I'll be using

Fig.31

Fig.32

Fig.33

Fig.34

Fig.35
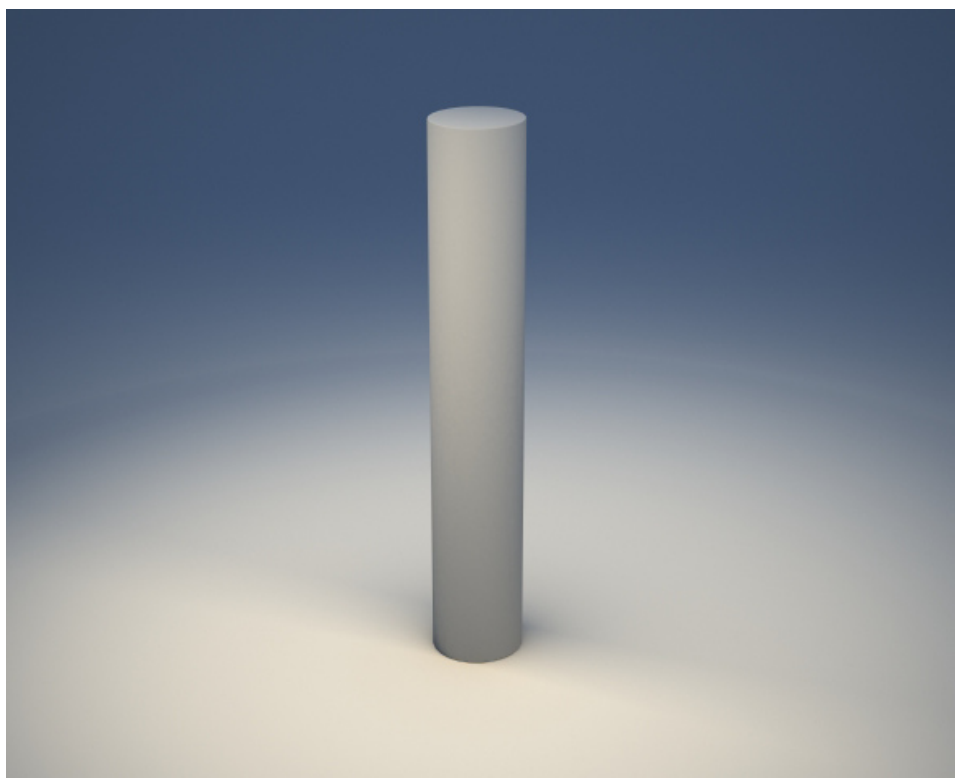
Fig.36 - Render produced with just one spotlight

killer bee by sparky

lwo / 427k
3ds / 640k
max / 788k
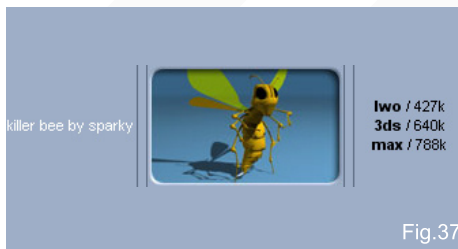
Fig.37

a bee model from the 3DTotal website, here. It is located in Free Stuff > Models > misc. This model comes with just a bee, and no ground, so create one underneath it. Before sending objects to Layout, it is always advisable to check out the dimensions of our objects inside Modeller. This bee is very big; it is some metres tall. How do I know this? There is an easy way to check and fix dimensions. If you create a box with the numerical panel, you can specify the height, width and depth of such a box. If I want to give a height of 10cm to this bee, I then create a box of 10x10x10. Then, shrink the bee until it can fit inside such a box (Fig.37).

c) Creating the null object. There is an easy way to make a light spin around an object. First of all, we need to add a null object inside our scene. I'll suggest to change the name to something as "Spinner". By default, null objects are created at the position 0,0,0. If your bee is not in this same place, position it just below the bee (Fig.38).

d) Setting up the light: We now need to setup the scene's light. Remember that by default Lightwave scenes come with a distant light. Change it to spotlight. Give it a name, and set its colour to some deep blue as the one shown on the print-screen (Fig.39 and 40).

With the light still selected, press <M>. This will open the Motion Options for the Light menu. Set the Parent Item drop down to "Spinner". This will attach the light to the "Spinner" null object. Set the Target Item to "Spinner", also. This will make our spotlight always target the null (Fig.41).

e) Fractional Frames. The spinning light trick requires the evaluation of a time lapse, and not just a frame. By default, Lightwave evaluates

Build Null Object

Spinner

OK

Cancel

Edit

Fig.38

Fig.39

Fig.40
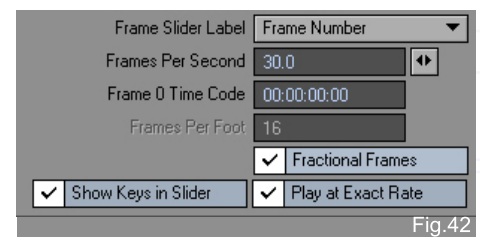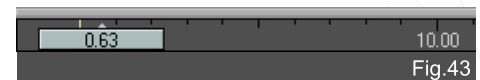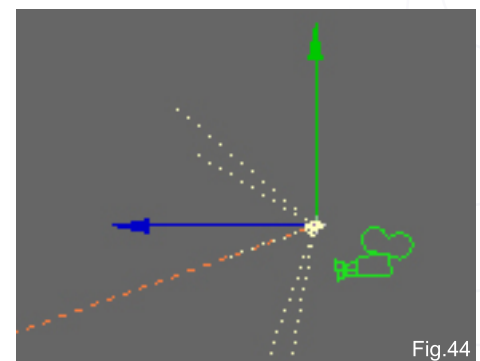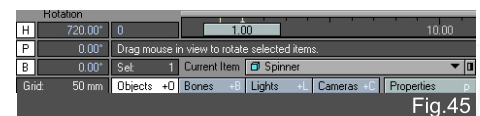
just frames; they are shown on the time line as integers: 0,1,2,3,4... etc. Therefore, we need to use fractional frames for the spinning light trick to work. Do so by pressing <W>. This will open the Preference menu. Here you can activate Fractional Frames. Lightwave will then be able to evaluate light between frames. Notice also how your time-line will now be able to show fractional frames (Fig.42 and 43).

f) Adding keyframes: Activate "Auto Key" under the time line, so that keyframes are created automatically. Select the spotlight at frame 0 and position it at a fairly good distance from the bee, and just above it. Don't add any other keyframe to the light as it will be moved by the null (Fig.44).

Select the null object named "Spinner" at frame 1.0. Change the Heading to 720°. **Note:** if your mouse has a scroll button, you can use it to switch between Position, Scale and Rotation (Fig.45).

Fig.41

Fig.42

Fig.43

Fig.44

Fig.45

Fig.46
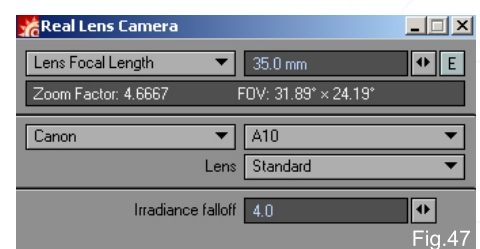
Fig.47
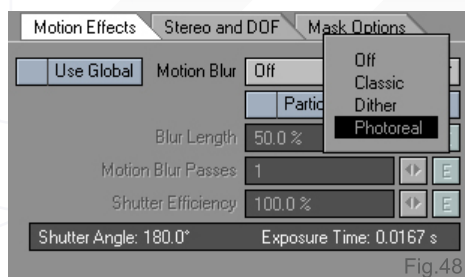
Fig.48

g) Camera Setup. It's now time to setup the camera. By default, Layout includes a Classic camera inside your scene. You can see its properties by selecting it and pressing the <P> key. There are many types of cameras. Select a Real Lens Camera from the drop-down. A pop-up menu will appear. It will allow you to choose the Lens Focal Length, the camera brand, and even the type of Lens (Fig.46 and 47).

h) Motion Blur setup. Motion Blur happens in real life cameras without the activation of any parameter. Its amount is determined by the shutter speed. Its quality is determined by the type of camera taking the picture. Motion Blur is not activated by default inside Lightwave. There are different kinds of Motion Blur inside Lightwave. Lightwave 9.2 introduced the "Photoreal" Motion Blur - this is the best Motion Blur Lightwave has so far. Select it (Fig.48).

h) Render setup. So far we have specified the elements for rendering, but not the rendering quality for the image. Setting up these settings is similar to cooking - they will determine the quality of the image. The higher the quality, the higher the render times. Finding a balance is indispensable. There are no magic formulas, therefore it is learned more by practice than methods. I'll briefly explain what each variable does, and we will familiarise with the best methods of using them as we go through the chapters. Pressing the render button at this moment will produce a horrible result (Fig.49).

Anti-aliasing. This option is set to 1 by default. It specifies the refinement of an image. The higher it is, the slower it is, but the less grain and

Fig.49 - Ugly render
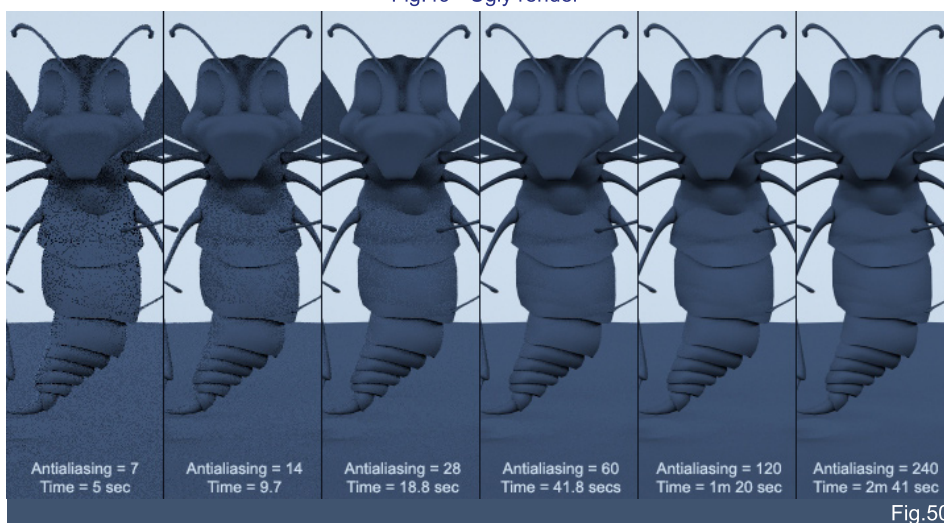
Fig.50

jagged edges your images will have. Photoreal motion blur causes a lot of grain, however noise is better in comparison to the jagged artifacts from other motion blur types. Getting rid of noise could be as easy as using a high level of anti-aliasing (Fig.50).

Reconstruction Filter. These filters determine how the rendering data is combined at a sub-pixel level in order to produce a final image. Their names derive from the research that led to their development. Box filtering is a classic way to reconstruct an image from raw rendering samples. It is an old reconstruction technique which exhibits significant artifacts when motion is applied, as with images with fine detail. Images rendered with Gaussian will tend to have a soft look. Lanczos produces emphasized edges in high contrast areas of an image. Mitchell is similar to the Lanczos filtering, however it does not suffer from many of the artifacts of Lanczos filtering - this makes it a favourite amongst the rest. All of them have their uses and applications, depending on the rendering situation.

Sampling Pattern. This option determines how the anti-aliasing samples are distributed. So

far there are 3 options: Classic, Blue Noise and Fixed. Blue noise randomises samples. This makes it perfect for images that require a lot of noise clean-up. Fixed works great when the image has fine geometrical patterns in the scene. Classic is the oldest of the 3 options, and it is recommend that you set as default if you have no idea which one to use.

Soft Filter. It is simply what it is named as: a filter to soften pixels. It can be activated or deactivated. However, it can't be set to different intensities. It comes in handy for animation sequences with heavy weight motion blur, but it is not recommended for static shots.

Adaptive Sampling. This is a new and more efficient alternative to anti-aliasing. Adaptive Sampling will make the program look for high contrast areas that should be refined. The boundaries of such a domain is dictated by the Threshold. This rendering feature was enhanced in Lightwave 9.2 - it produces faster results with very high quality. Before Lightwave 9.2, noise and artifacts had to be removed by using high levels of anti-aliasing. The user had to balance the anti-aliasing passes and adaptive sampling levels. Now you can use Adaptive Sampling with a single Anti-aliasing pass. This makes the management of the quality of a render much easier than before.

Threshold. This value defines the level of
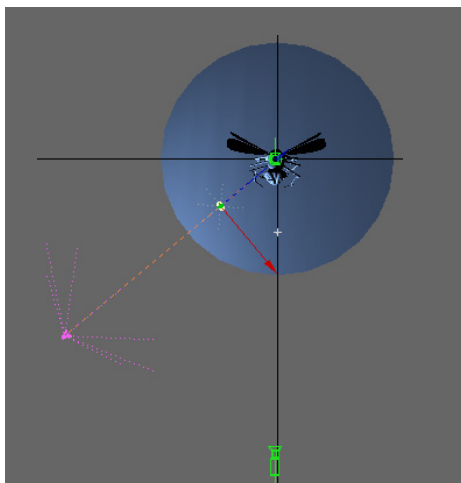
Fig.53 - New spotlight added to paint floor

Threshold = 0.5 Time = 1.2 sec
Threshold = 0.25 Time = 1.8 sec
Threshold = 0.12 Time = 3.2 sec
Threshold = 0.06 Time = 6.3 sec
Threshold = 0.03 Time = 13 sec
Threshold = 0.01 Time = 33 sec
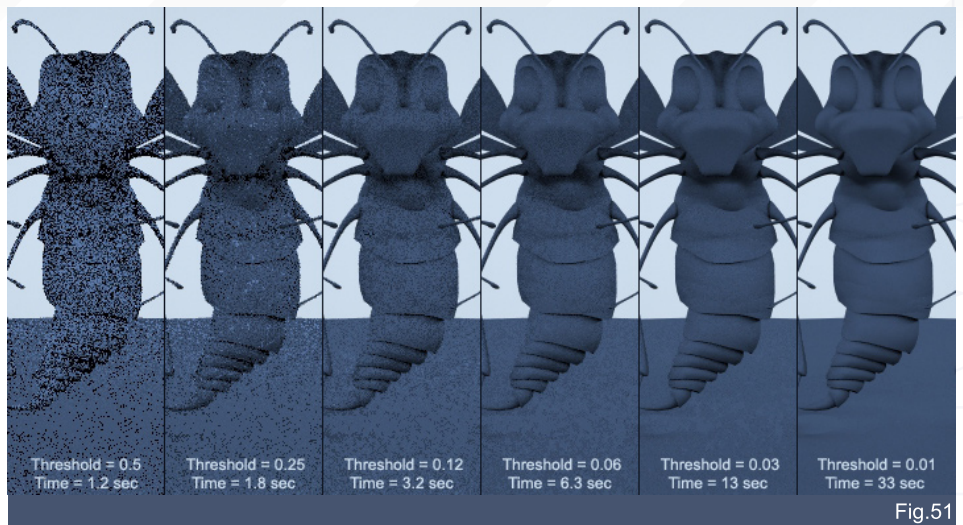
Fig.51
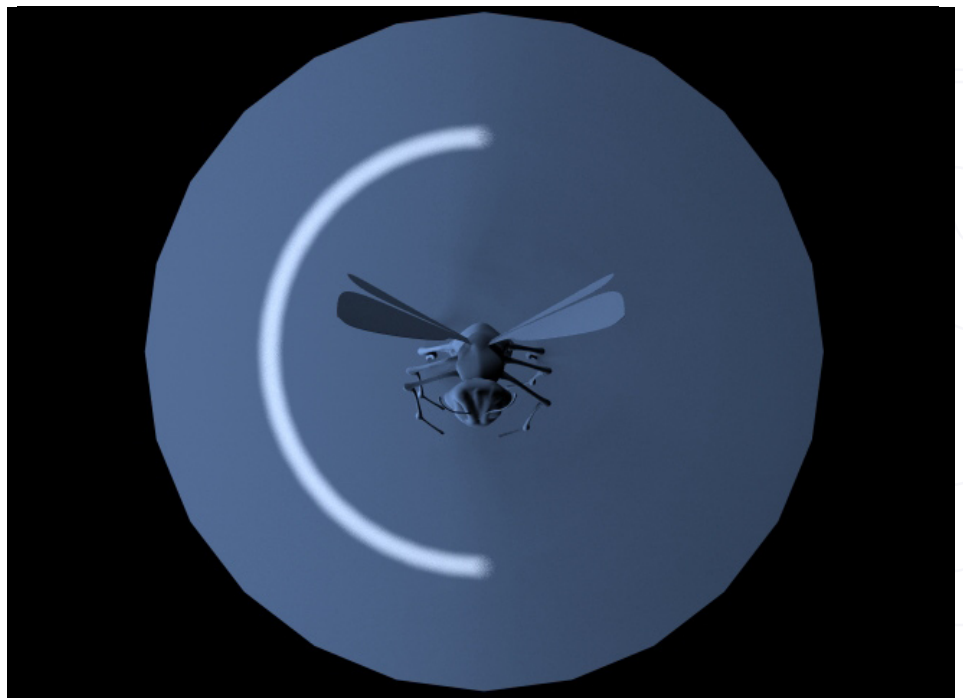
Fig.52 - Painted floor by spotlight

refinement of the Adaptive Sampling. The lower the value, the less grain you will get, but the slower it will be to render. For a rough quality, 0.03 works nicely. A value of 0.01 gets rid of the noise almost completely (Fig.51).

Oversample. This is a softener. However, this variable does not get rid of noise. Therefore, it is not a critical complementary variable for the Threshold. Its presence will not dictate the quality of a render.

i) Motion Blur Analysis: Spinning & Blur Length. We already setup the Motion Blur type

to "photoreal". There is a close relationship between the amount of movement we give to a light (by spinning the null in this example), and the amount of Blur Length we specify at the Motion Blur setup. So far we setup the Motion Blur to Photoreal. By default, the Blur Length is set to 50.0%. Let's do some exercises so that you understand this relationship a bit better...

j) Setting the Spinning Rotation. In this chapter, we set the rotation of our null to 720°. This makes our null and light spin twice around the bee. Why twice and not just once? If we set the rotation to 360°, we will just illuminate half of the
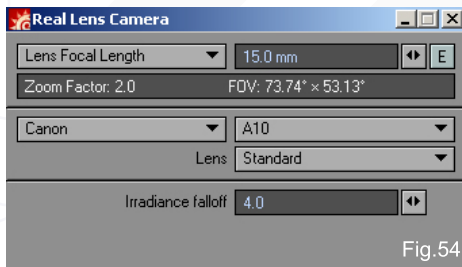
Fig.54

bee. To show it more clearly, I attached another spotlight facing down so that it hits our floor directly, and therefore "paints" over it (Fig.52 and 53).

To know how much rotation or movement is required, we can follow this formula:

Formula:
Degrees of illumination = (Degrees of rotation) x (Blur Length / 100)

Example 1:
360° degrees of spin with 50% Blur Length
Degrees of illumination = (360°) x (50 / 100)
Degrees of illumination = (360°) x (0.5)
Degrees of illumination = 180°

Example 2:
720° degrees of spin with 50% Blur Length
Degrees of illumination = (720°) x (50 / 100)
Degrees of illumination = (720°) x (0.5)
Degrees of illumination = 360°

k) Conclusion. All of this mathematical analysis may seem tedious, however these relationships allow us to create richer lighting effects. Before starting spinning lights, we were able to create an environment with the use of 6 Area lights. This setup was effective, yet not as efficient as using a single spinning spotlight. Now that we know the basics of spinning lights, we can carry on and make more complex spinning lights to attain higher levels of quality and style, and keeping those render times as low as possible.

USING APPROPRIATE FOCAL LENGTHS
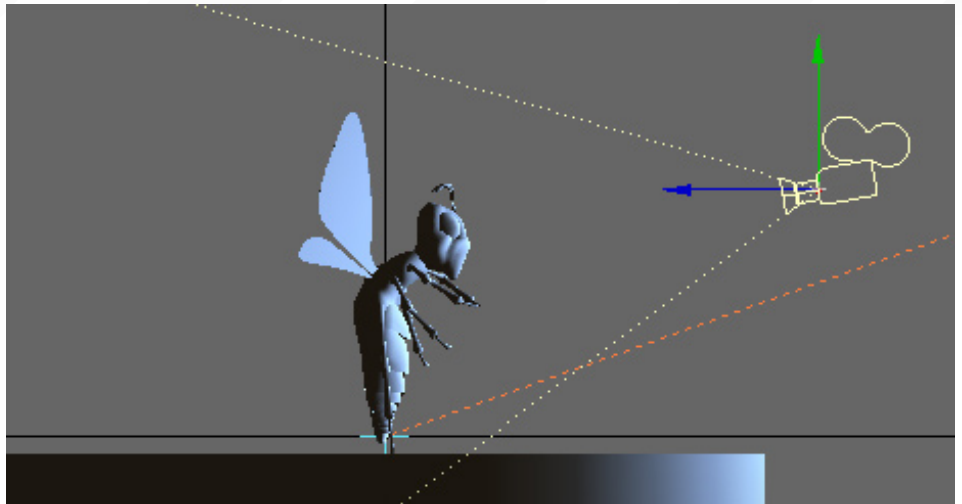
Fig.55 - Put some inclination to your camera
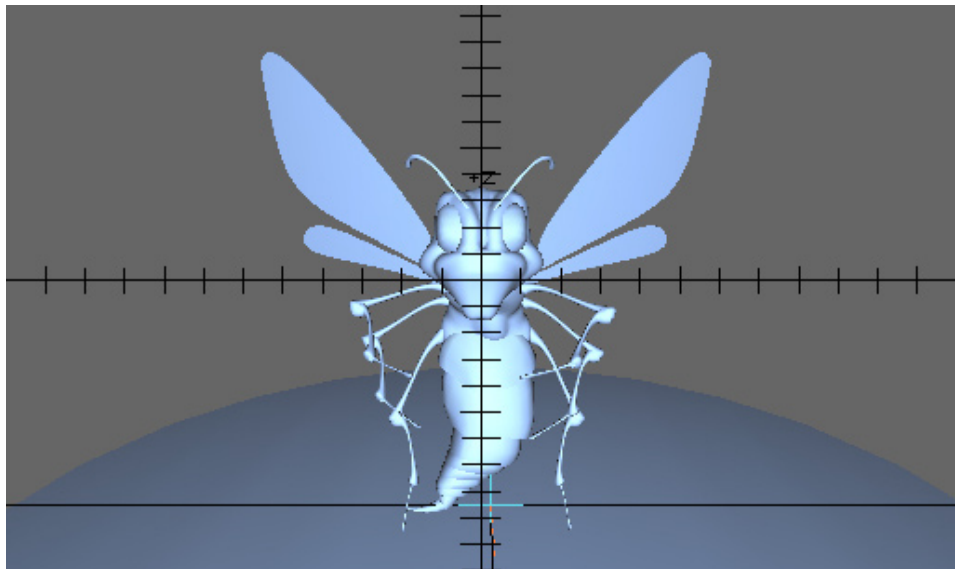
Fig.56 - Position yourself above the bee

There are different types of lenses that are used to portray different types of subjects. A 35mm lens resembles the way the human eye perceives its surroundings. A 50mm lens is sometimes used for portrait photography. Our bee is little, therefore we can enhance its nature by using a lens which stretches and deforms it slightly (Fig.54).

USING CAMERA ANGLES

So far we are portraying the bee at its same sight level. If we photograph it from underneath, we will make it look bigger, since we would effectively be underneath it. By putting our camera above the bee, we will make it look smaller and more inferior, and perhaps not as threatening (Fig.55 and 56).

Fig.57 - Blured background
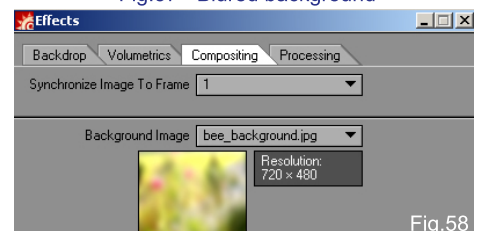
Fig.58

Fig.59 - Adding some sunlight

Fig.60

ADDING A BACKGROUND IMAGE

There are several ways to add a background image to your render. It can be done inside the program, or outside of it. Doing it inside Lightwave is fast and easy. The options are available in the Effects menu. Open it by going into the Windows > Backdrop Options. Inside it, there is a tab called "Compositing". Here there are different options for the foreground and background. For this example, I firstly blurred a photo inside Adobe Photoshop. I then selected it (load image) from the Background Image drop-down menu (Fig.57 and 58).

ADDING SUNLIGHT

We can still apply the same principles of the previous rigs to create the Sun. For this example, I used the same colour and even the same intensity with a distant light (Fig.59 and 60).

REAL LIFE DEPTH OF FIELD

Portraying a small subject, such as a bee, with a real life camera would result in a pronounced

blur effect called Depth Of Field (DOF). Most commercial cameras automatically measure ambient light. By doing this, these types of cameras will automatically take a picture where all objects are perfectly focused, and so they will not be blurred. Cameras in which you can vary the aperture and shutter speed give you the opportunity to create DOF (Fig.61 and 62).

LIGHTWAVE DEPTH OF FIELD

a) DOF Activation. Lightwave 9.2 introduced a very photo-realistic Depth of Field. It is located in the Camera Properties menu, at the bottom, inside the Stereo and DOF section. It has 4
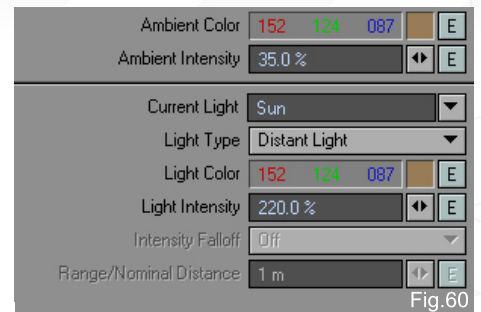
Fig.61 - Real life DOF

Fig.62 - Real life DOF
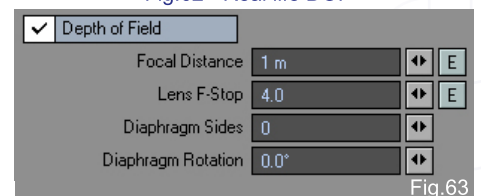
Fig.63
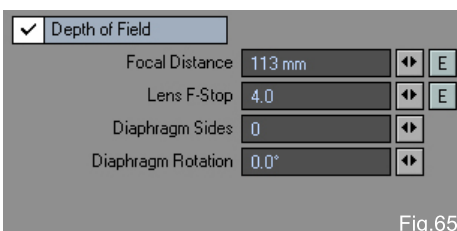
Fig.65
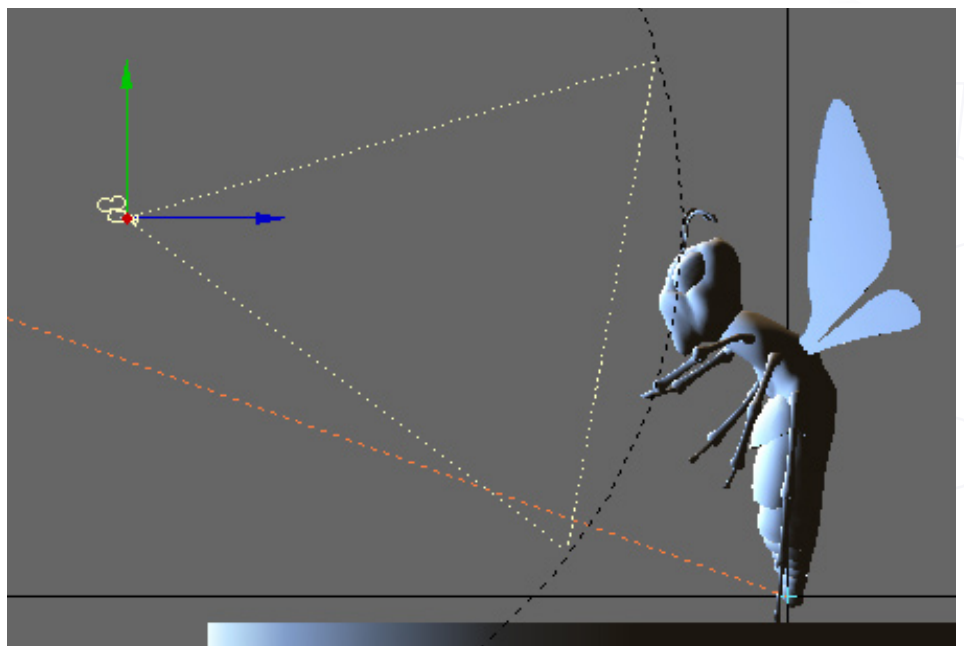
Fig.64 - Dotted line delimits the Focal Distance
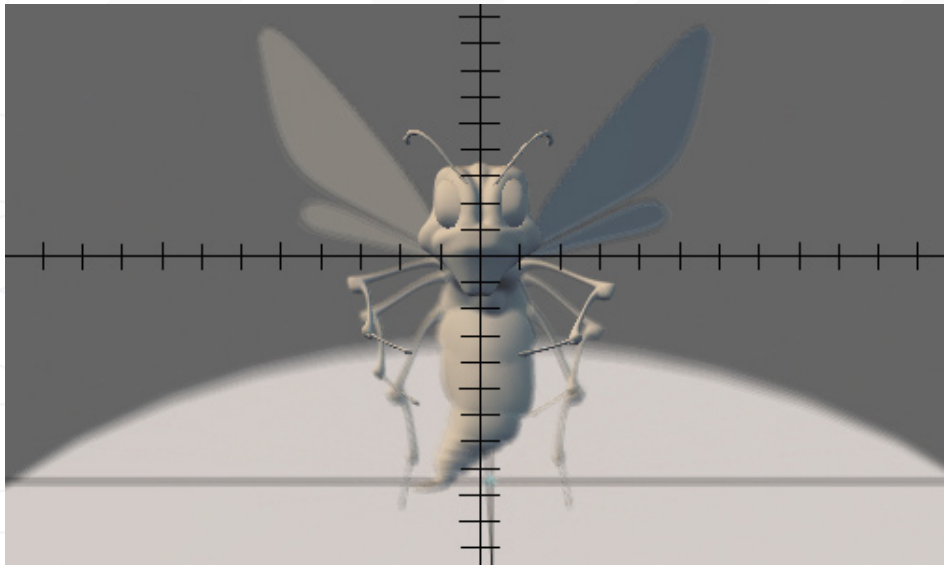
Fig.66 - DOF preview at Layout
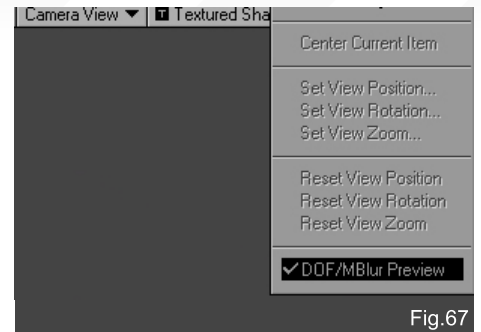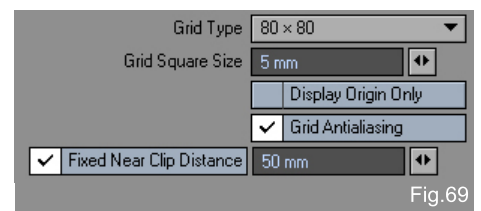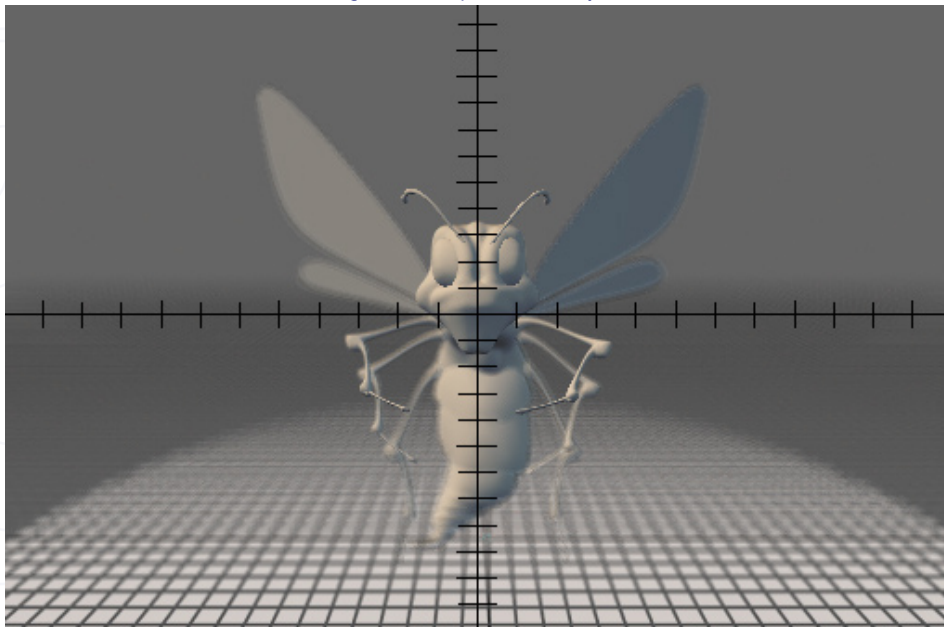
Fig.68 - Activate the grid and make DOF setup easier

Fig.70 - Render with DOF

Fig.67

Fig.69

different variables: Focal Distance, Lens F-Stop, Diaphragm Sides and Diaphragm Rotation. To activate them, you must check the Depth of Field option (Fig.63).

b) DOF Setup. Once DOF is activated, a circumference will be visible in the orthogonal views (not the perspective). This circumference delimits the Focal Distance. Anything that is on that line will appear crystal clear. Anything that goes away from that line will be blurred. How blurred will it appear? Well, that depends on the Lens F-Stop. The lower the value, the more blur that will be added once objects start to move away from that circumference (Fig.64 and 65).

c) DOF Preview. There is a way to preview DOF. In the Camera View, there is a third drop-down menu, from left to right. This one holds special views for the viewports. The one at the bottom is called DOF/MBlur Preview. Clicking on it will activate/deactivate blurring - this way, you don't have to make render test to see if the amount of blur is correct (Fig.66 & 67).

There are some other setups we can tweak in order to better visualise how the DOF is working. Press <D> to open the Preferences window. Inside it, deactivate Display Origin Only. Activate Grid Anti-aliasing. Furthermore, add a small measurement for the Grid Square Size (Fig.68 and 69).

Fig.71 - Change to green the Ambient Intensity

Fig.72

Fig.73 - Tweak and refine the scene

Fig.74 - Start texturing only after lighting
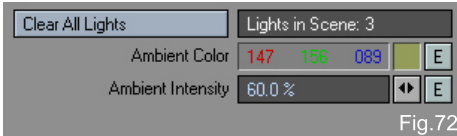
d) DOF recommendations. Since this type of effect is not normally present in automatic cameras, using it for certain shots can add a touch of professionalism to your images. Be aware that you should not use it for just any kind of shot! The best way to know when, and how much, to use it is to have real life references. Search for images. If you can't find any, go and take some with a real life camera (Fig.70).

MATCHING THE BACKGROUND AMBIENT LIGHTING

Our background image is mostly green. So far we have a brown colour for our Ambient Intensity, but this is not logically accurate. Such a garden would bounce more green light than brown light. Therefore, if we change it to a desaturated green, we can make our lighting and background look more integrated (Fig.71 and 72).

DETAILING

Once our lighting setup is done, give the image a break if you can. Then, start tweaking other parameters to make them as good as your lighting. For instance, the plane we are using is pretty boring. So far it has been used as a tool for lighting only, so it is time to get rid of it and add something more interesting. I decided to use a flower, since it fits the theme and simplicity of the shot. The DOF was able to tell

Fig.75

us that our bee was small, but there was no other object that worked as reference to tell us the size of the bee. Furthermore, I changed the composition of the shot from horizontal to vertical (Fig.73).

SURFACING

Whilst this is not a surfacing chapter, I felt tempted to add some surfacing to our shot, and check how everything joined together. When lighting is done carefully, such as in this chapter, it is easier to do surfacing. It is the same as with model photography: when a model is beautiful

Fig.76

and well lit, you require less make-up to make her look gorgeous (Fig.74).

POST PROCESSING IN PHOTOSHOP

It is OK to tweak an image at Adobe Photoshop - just be careful of the workflow you follow inside the program. Always tweak your renders with "non-destructive methods". Non-destructive methods are those which will not paint on top of an original image, or add effects that are irreversible. Instead of applying the filters directly, use the menu at the bottom of the Layers Window. This way, effects will be added as layers, and not directly to the image (Fig.75 and 76).

POSTPROCESSING HABITS FOR ANIMATION

Post-processing is most valuable when its effects can be animated. Post-processing for animation is done in programs such as Adobe After Effects. This particular program also includes adjustments for brightness, contrast, colour balance, levels, blur, colour modes, and so on. At any cost, avoid painting by hand any adjustments to the images! Try using masks based on the inherited alpha channel. This will allow you to animate those same adjustments, and not just a single frame (Fig.77).

CONCLUSION

In this chapter we have analysed 3 different lighting setups to produce daylight without radiosity. Some new basic lighting and rendering tools where covered. We used these to emulate indirect lighting and attain finer looking results. The basics of the "spinning lighting trick" were also explained, here. Whilst the lighting results of this chapter are modest, they are a solid foundation that will become the basic pillar of the following chapters.

CESAR ALEJANDRO MONTERO OROZCO

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Fig.77 - Final Image

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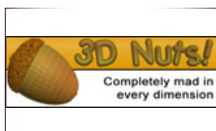
3D environment lighting

3ds max

'3D Environment Lighting' is our new 6-month tutorial series. Over the course of the next six months, this series will be detailing techniques on lighting an environment under a number of different conditions. Each month we will cover a step-by-step guide to setting up lights, aimed at portraying the scene in a specific manner. The various tutorials will be tailored to specific software packages and each will aim to show a comprehensive and effective way of lighting an interior of a ship that includes both natural and artificial light. These will include a sunny afternoon, sunset, moonlight, electric light, candle light, and finally a submerged submarine light. The schedule is as follows:

Issue 023 July 2007

Natural Exterior Lighting
Sunny Afternoon

Issue 024 August 2007

Natural Exterior Lighting
Sunset

Issue 025 September 2007

Natural Exterior Lighting
Moonlight

Issue 026 October 2007

Artificial Interior Lighting
Electrical

Issue 027 November 2007

Artificial Interior Lighting
Candlelight

Issue 028 December 2007

Artificial Exterior Lighting
Underwater

Enjoy ...

NATURAL EXTERIOR LIGHTING PART 2 - SUNSET

Fig 01

1. This month, we'll set up our lighting scene to make it resemble a moody sunset. As usual, we'll use Mental Ray renderer to accomplish this task. Open the Ship Cabin_Sunset_Start.max scene included with this tutorial (download can be found at the end of this tutorial; click on the Free Resources logo) (Fig01)

Fig 02
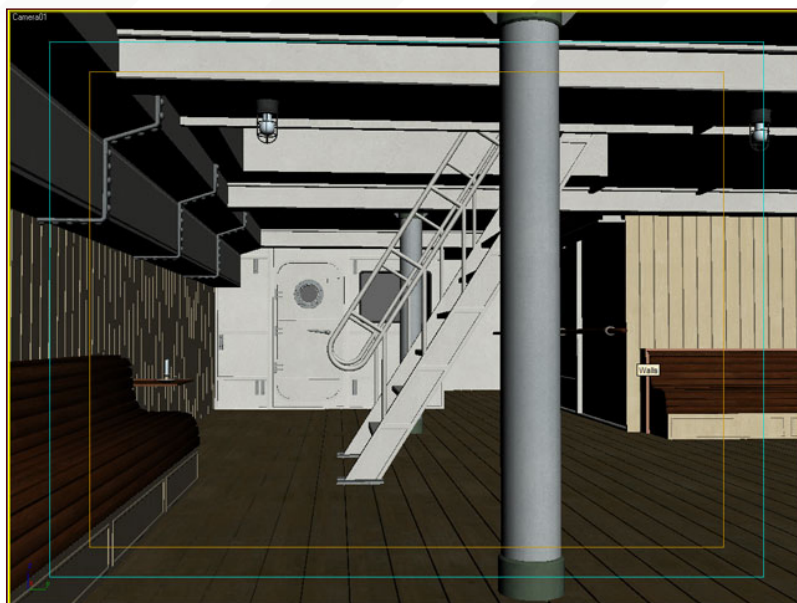
2. First of all, let's assign Mental Ray as our renderer. Open the Rendering panel (you can use the F10 shortcut key), switch to the Common tab and go to the Assign Renderer rollout (Fig02). Click on the button with the three dots and select mental ray Renderer from the list. Click OK to close the browser window.

Fig 03
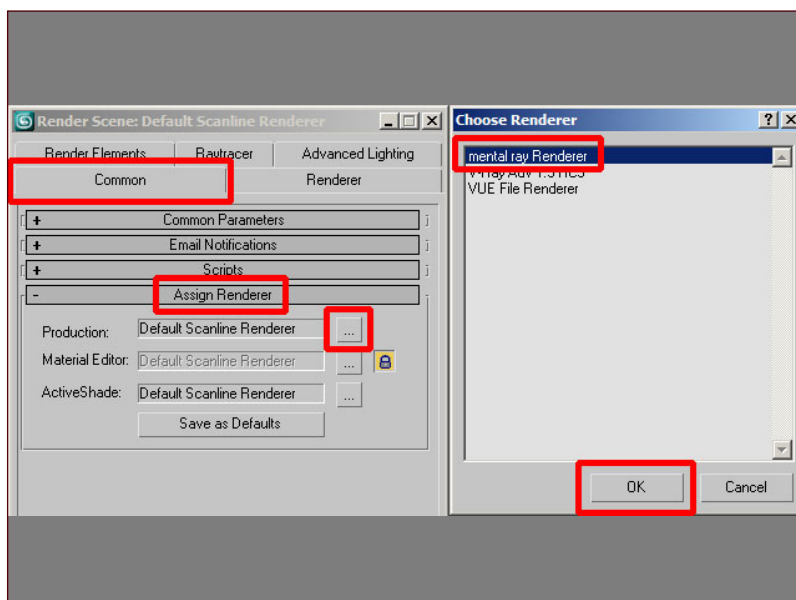
3. Select the Walls and Ceiling objects and hide everything else. This will help us achieve a better visualisation whilst we create the lights that we need for the scene (Fig03).
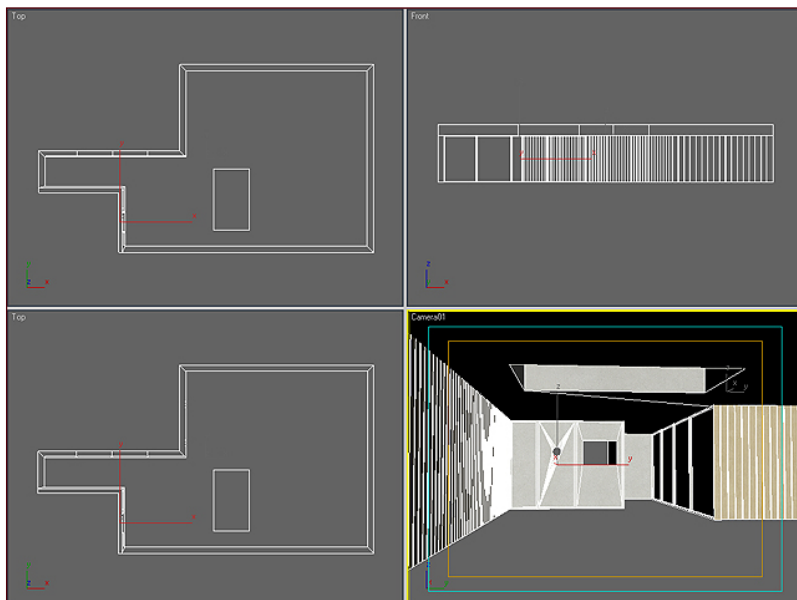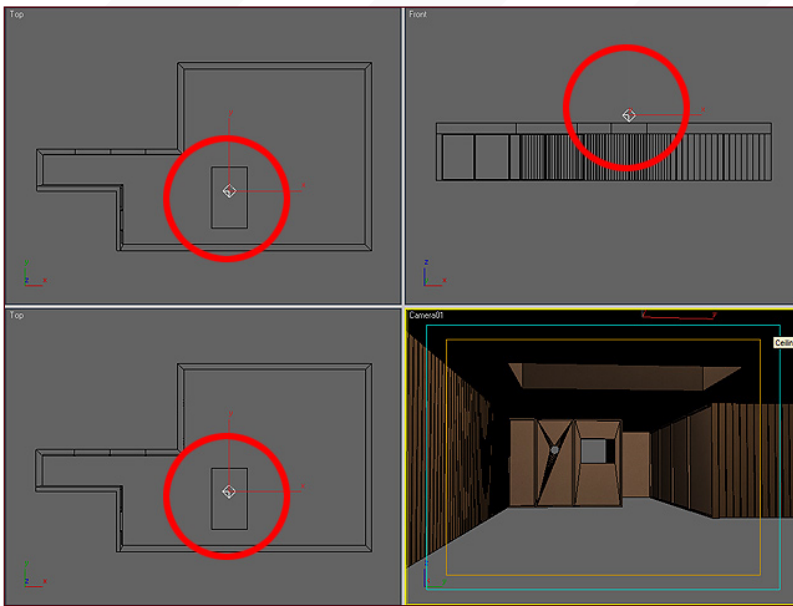
Fig 04

4. Create a simple Omni light and position it as shown in Fig04, just above the opening in the ceiling. This Omni light will simulate light entering from the ceiling. It is not our key light, so its intensity will be quite low.
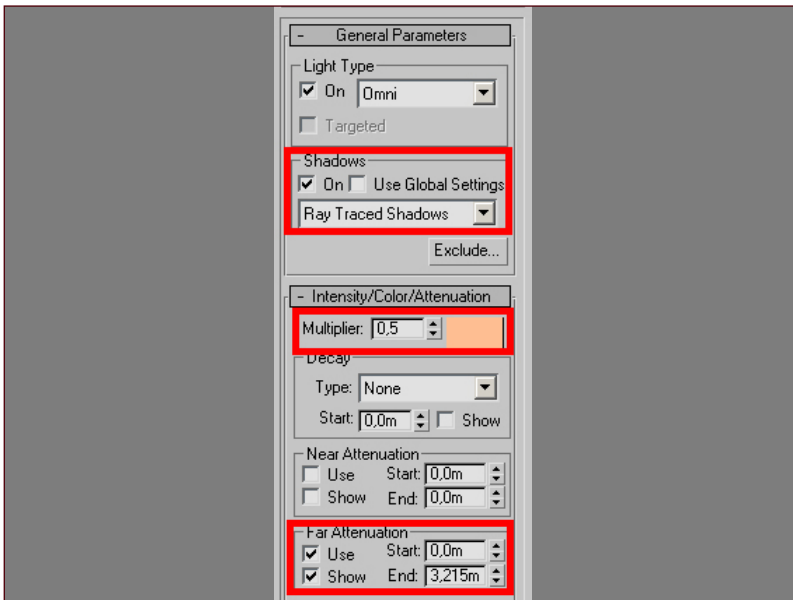
Fig 05

5. Select the Omni light and change its parameters, as shown in Fig05. Activate the Shadows option, and set it to Ray Traced Shadows. Set the Multiplier to something like 0,5 and it's colour to R=254 G=190 B=146. Also, enable the Use and Show options for the Far Attenuation, and set them respectively to 0,0m and 3,213m.
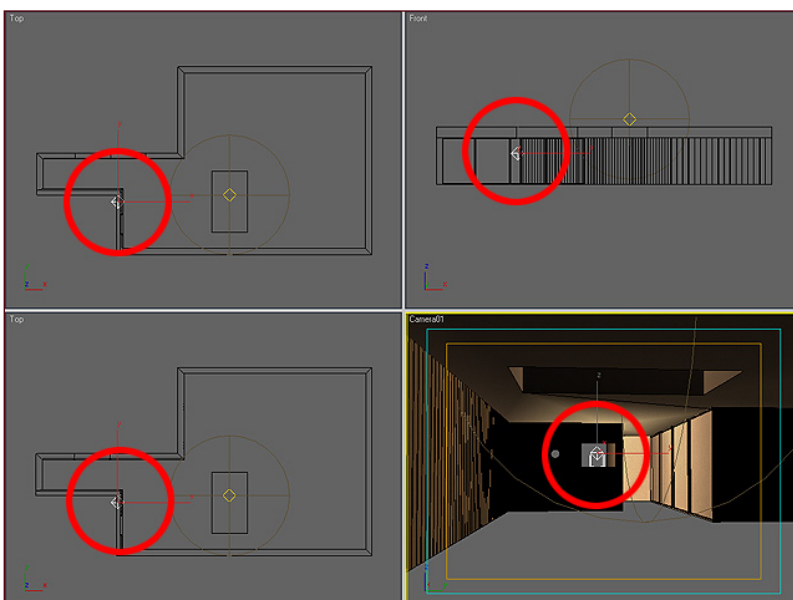
Fig 06

6. Now create another Omni light. This time, it has to be a mental ray Area Omni, since we need soft area shadows for our sunset. Position this new light as shown in Fig06, on the back wall area close to the windows. This Omni light will be our main light, since it will simulate the sun. Its intensity will be greater than the other light, and together with the shadows it will give our scene the mood we desire.

7. Select the mental ray Area Omni light and change its parameters, as shown in Fig07. Enable the Shadows and set them to Ray Traced. Set the Multiplier to 1,2 and its colour to R=255 G=199 B=150 (Fig07).

Fig 07
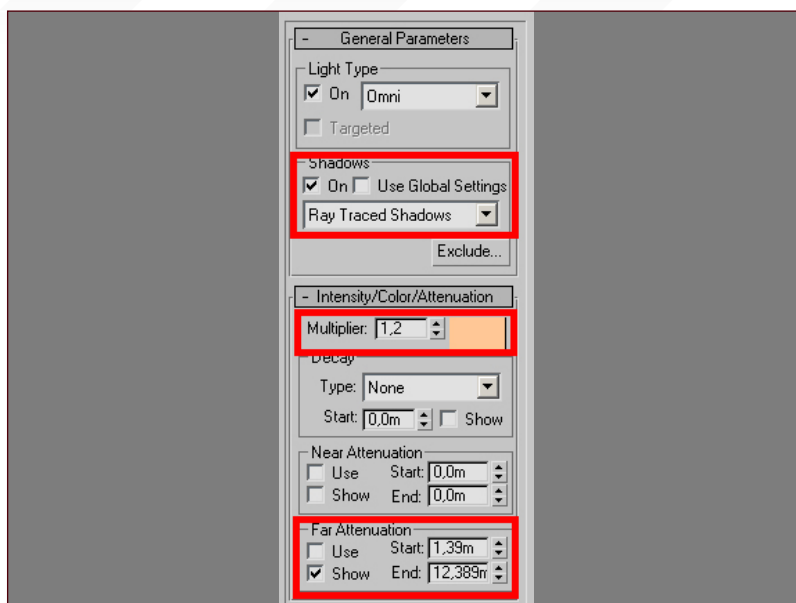
8. Open the Area Light Parameters rollout. Make sure that On is checked and set the Type to Sphere. Change the Radius value to something like 0,54m and the Samples to U=10 V=10 (Fig08).

Fig 08
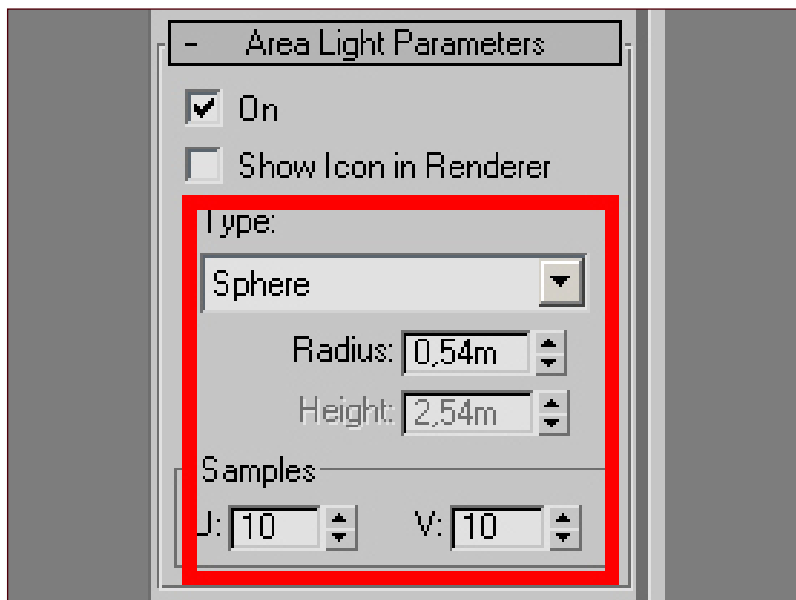
9. Before we start rendering the scene, we need to change another small thing. Open the Environment panel (use the <8> shortcut key) and change the Background Colour to R=247 B=176 G=98 (Fig09).

Fig 09
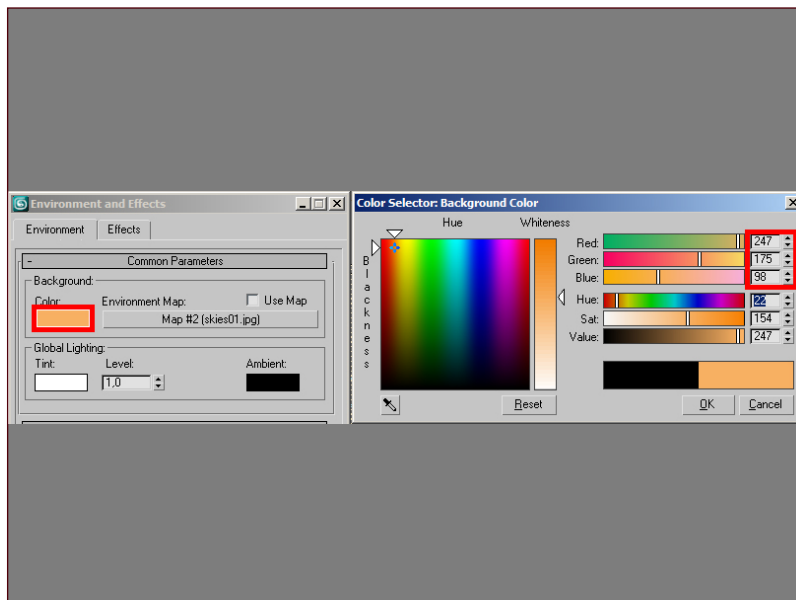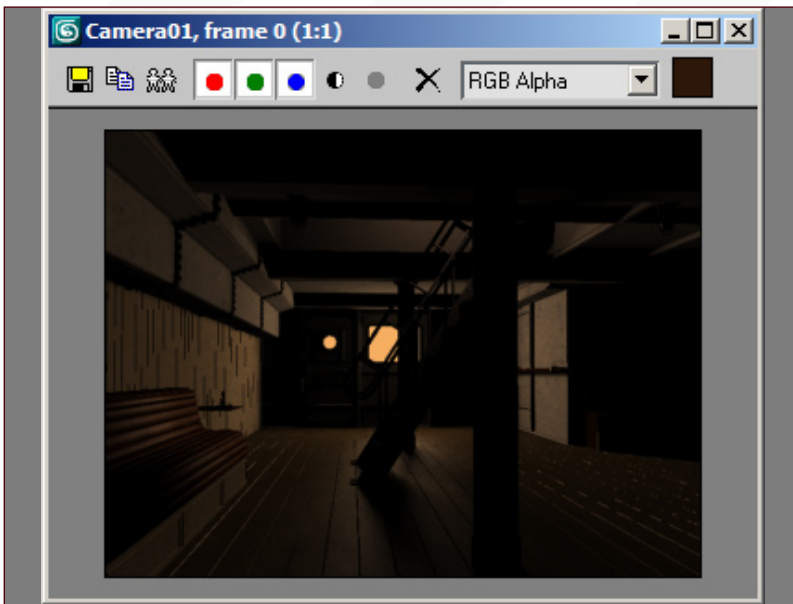
Fig 10

10. Now we can do a quick test render (Fig10). As you can see, the two lights are not enough to create our moody sunset lighting. We need some light bounces all over the scene to improve the general quality of the lighting...
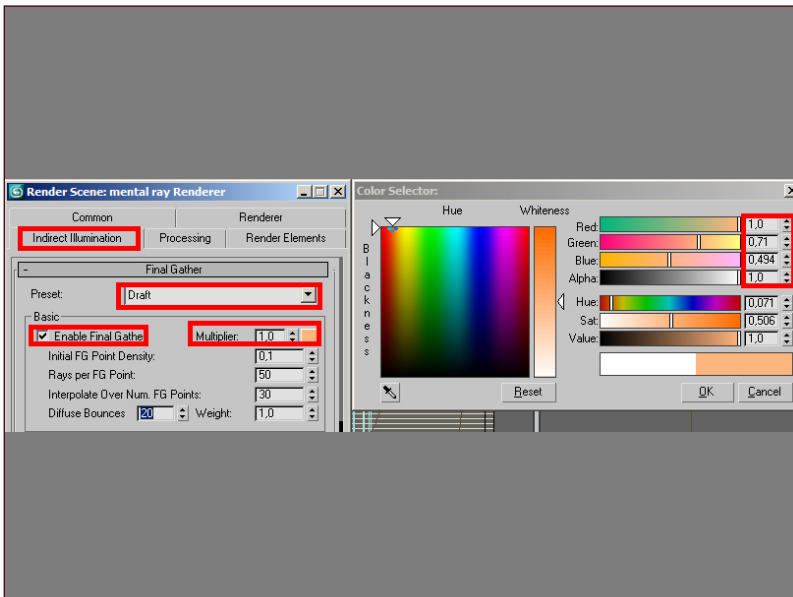
Fig 11

11. Open the Rendering panel once again and switch to the Indirect Illumination tab. Enable Final Gather and set the Preset to Draft (we don't need high quality at the moment, it's just for testing). Set the Multiplier to 1 and its colour to R=1,0 G=0,71 B=0,494. Also, set the Diffuse Bounces value to 20 (Fig11).
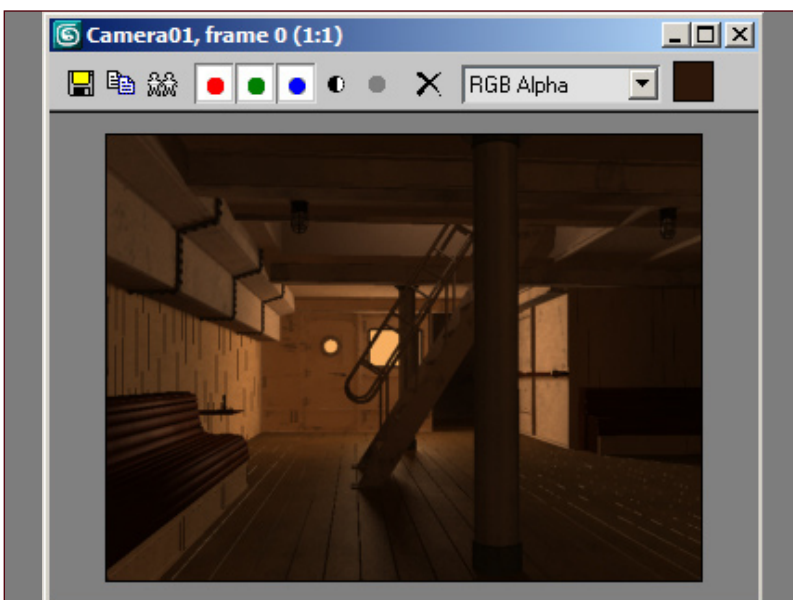
Fig 12

12. Render the scene again. This time it will take longer, which is because of the Final Gather calculation that mental ray needs in order to create the bounces of light (Fig12).

13. Now we have a nice lighting situation, with a key-light, a fill-light and some light bounces. We can now set up our final render with higher values. Open the Rendering panel and set the Preset to High. Change the Rays per FG Point value to 350 (the default for 'High' is 500, but we don't need such a high value; you can always try other values if you wish). Switch to the Renderer tab and set the Minimum and Maximum values for Samples per Pixel to 16 and 64 (Fig13). Change the Filter type to Mitchell and the Spatial Contrast R, G, B and A to 0,02. Also, switch to the Common tab and set a higher resolution for the rendering, for example 640x480 (or even higher if you wish - just keep an eye on the rendering times; the bigger the resolution, the longer it will take to render the final image).
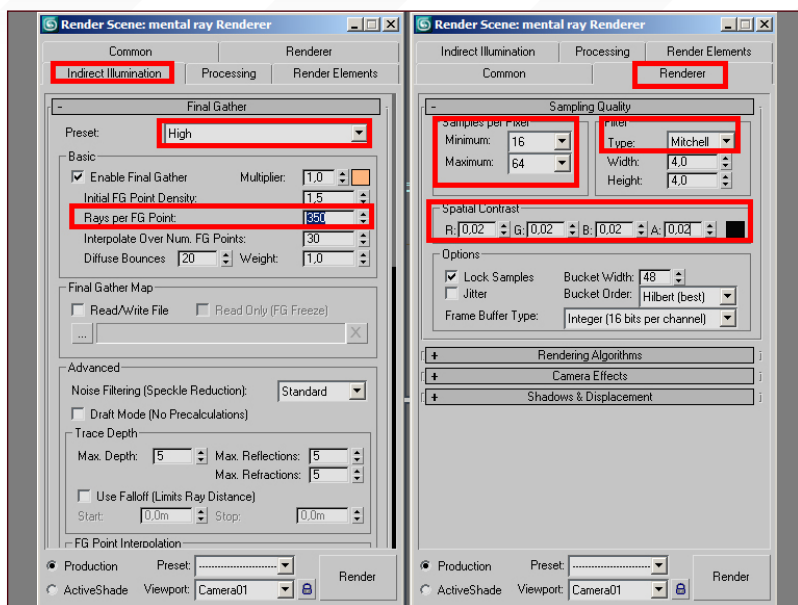
14. Render the scene again, and save the final picture to use it later in Photoshop for post-production (Fig14).

Fig 13

Fig 14

15. Now we need to render an Ambient Occlusion pass to composite it with the rendered image. Open the Ship Cabin_AO.max scene file, included with this tutorial. A new material was created (AO_Shader) and assigned to every object in the scene. This material has an Ambient/Reflective Occlusion shader in the Surface slot. You can take a look at Fig15 to see the shader's parameters.

Fig 15
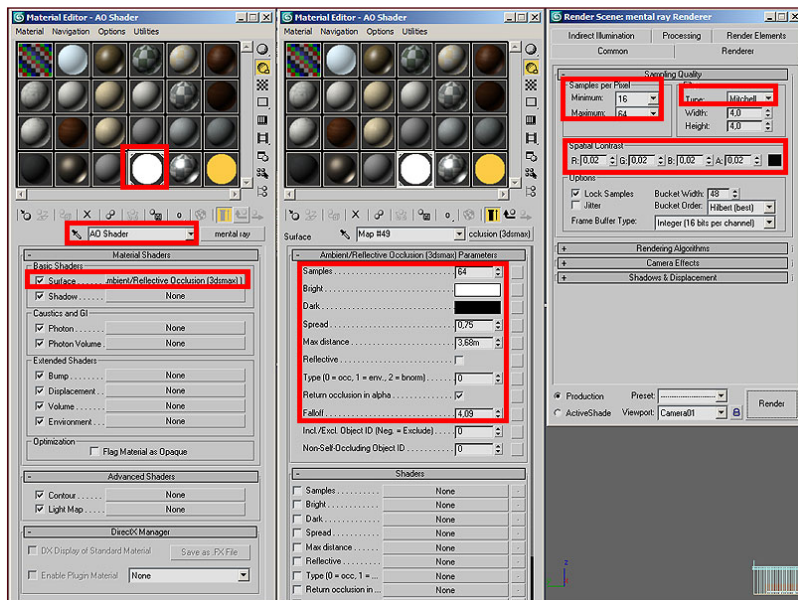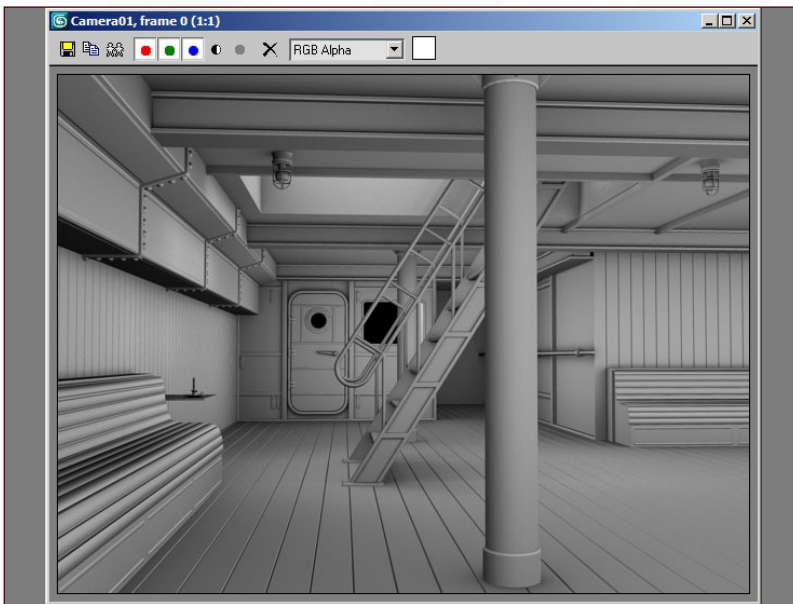
Fig 16

16. Render the scene to create the Ambient Occlusion pass that we need (Fig16). Don't forget to render the AO pass with the same size as the previously rendered picture.

Fig 17

17. Start Photoshop and import both the original rendering and the Ambient Occlusion pass (Fig17).
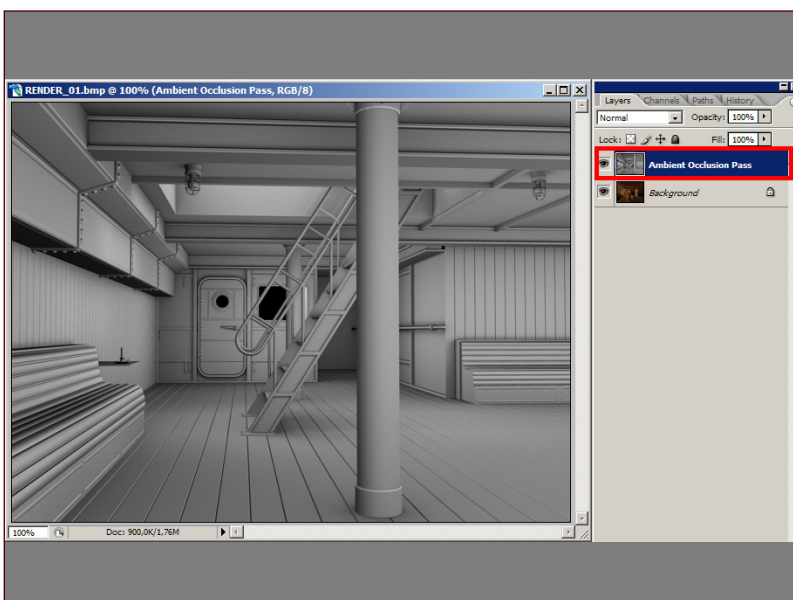
Fig 18

18. Switch to the Ambient Occlusion image. Select all (Ctrl + A) and Copy (Ctrl + C). Switch to the Original rendering and Paste the AO pass above it (Ctrl + V) (Fig18).

19. Change the AO Pass blending mode to Colour Dodge and its Opacity to about 58% (Fig19).

Fig 19
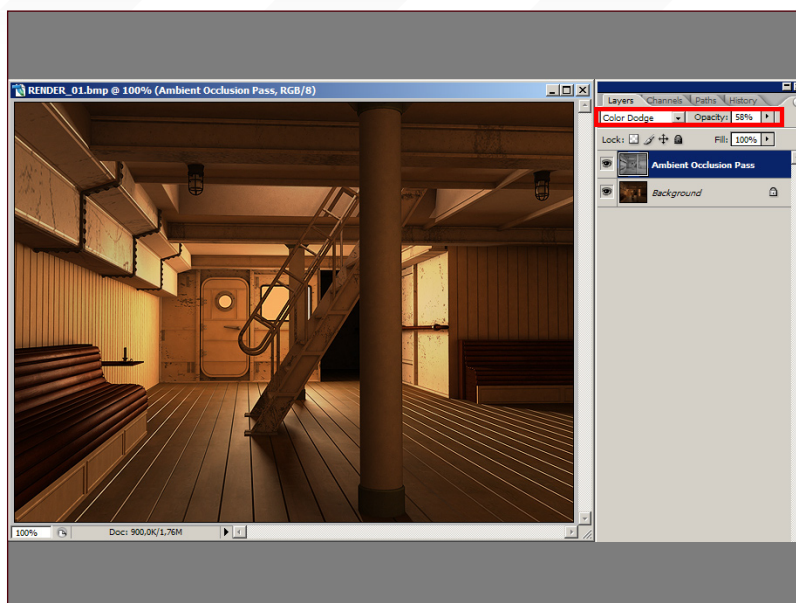
20. Now select both layers and use Ctrl + E to flatten them together (Fig20).

Fig 20
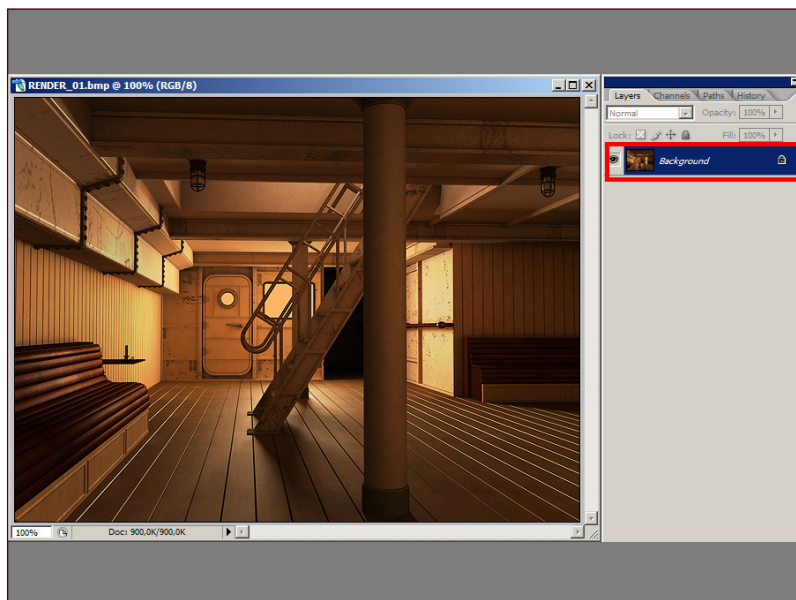
21. Duplicate the background layer and desaturate the newly created layer (Fig21).

Fig 21
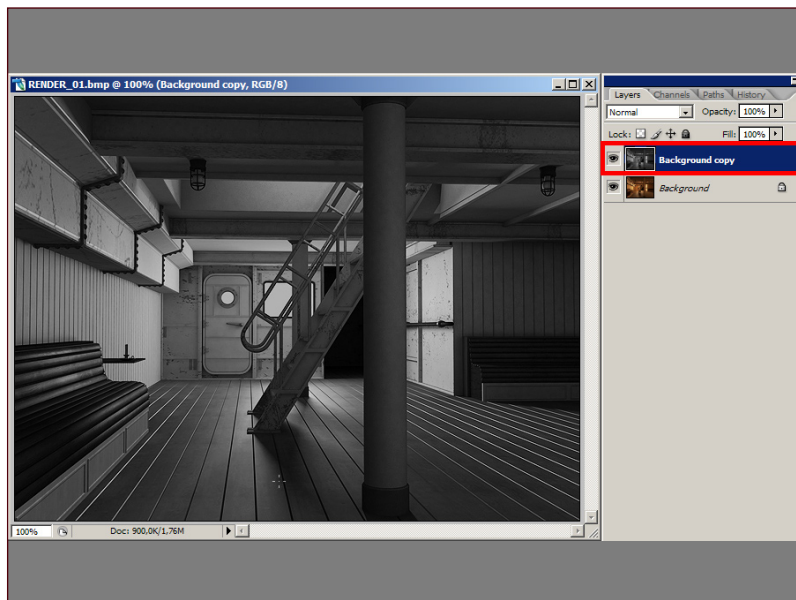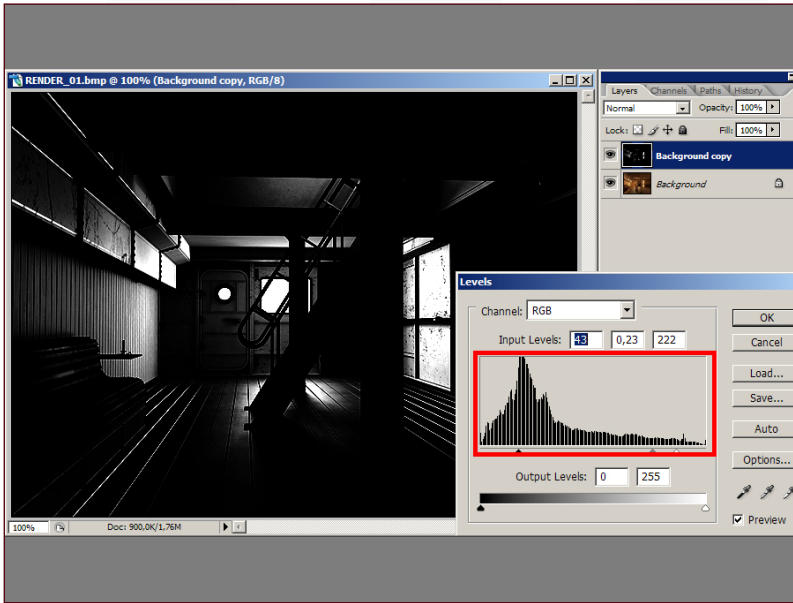
Fig 22

22. Change the Levels until you expose the brightest areas of the image (Fig22).
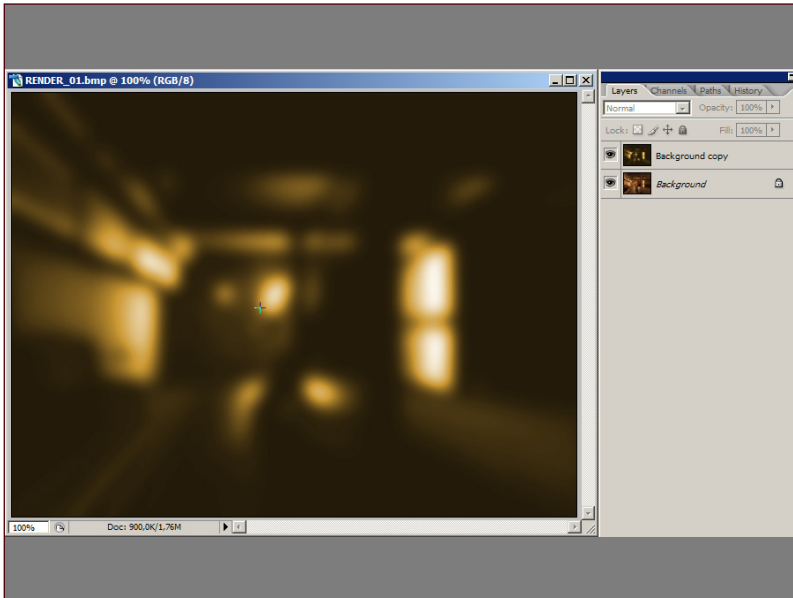
Fig 23

23. Apply a fair amount of Gaussian Blur to this layer and colourise it (Hue & Saturation), as shown in Fig23.
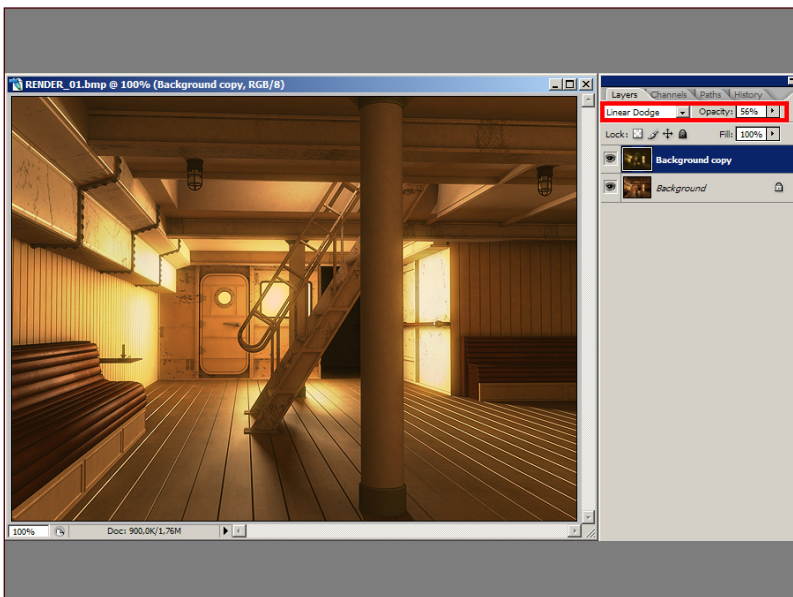
Fig 24

24. Change the Blending Mode for this layer to Linear Dodge and set its Opacity value to 56% (Fig24).

25. Select both layers and flatten them together (Ctrl + E). Create a new, empty layer and fill it with a pure black colour. Use the Filter / Render / Lens Flare effect to create something similar to Fig25.

Fig 25
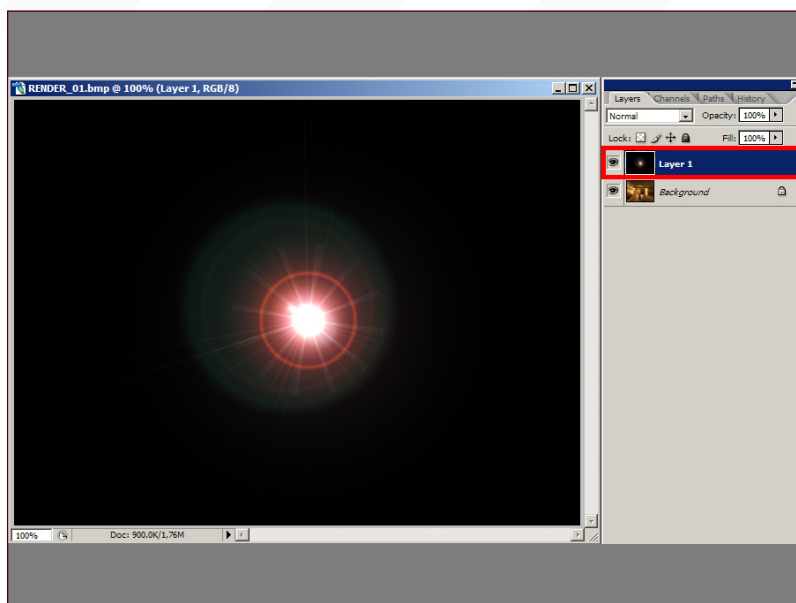
26. Set the blending mode of the top layer to Linear Dodge and adjust the Levels until you get the desired effect (Fig26).

Fig 26
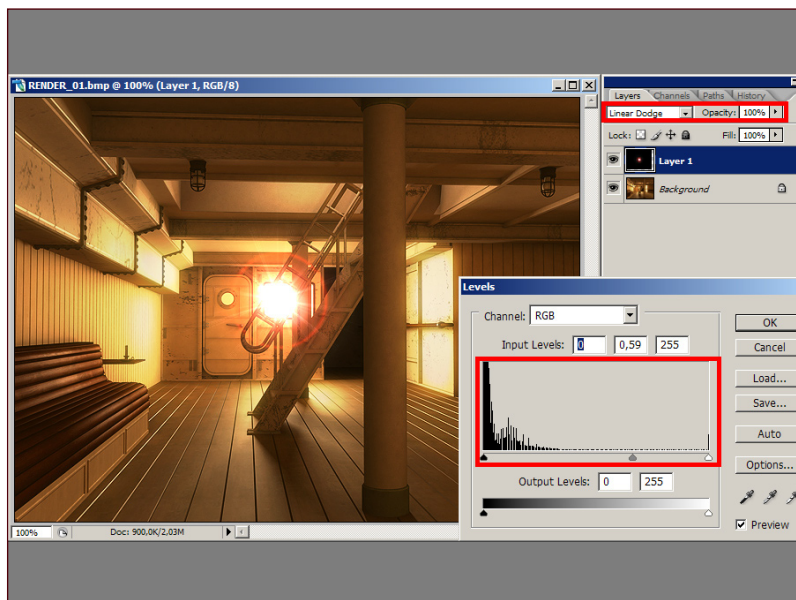
27. Finally, you can adjust the exposure to slightly change the overall feel of the image (Fig27).

Fig 27

3D environment lighting

CINEMA 4D

'3D Environment Lighting' is our new 6-month tutorial series. Over the course of the next six months, this series will be detailing techniques on lighting an environment under a number of different conditions. Each month we will cover a step-by-step guide to setting up lights, aimed at portraying the scene in a specific manner. The various tutorials will be tailored to specific software packages and each will aim to show a comprehensive and effective way of lighting an interior of a ship that includes both natural and artificial light. These will include a sunny afternoon, sunset, moonlight, electric light, candle light, and finally a submerged submarine light. The schedule is as follows:

Enjoy ...

NATURAL EXTERIOR LIGHTING PART 2 - SUNSET

In this second part of the tutorial, we will see how to illuminate the ship cabin by using natural exterior light, for which the environmental condition will be: sunset.

1. First of all, open the scene and examine it (download can be found at the end of this tutorial; click on the Free Resources logo). You can see from the cabin that there is an opening on the ceiling, a window, and a smaller window in the door. The sunlight will illuminate the cabin through these openings. Since we are using Global Illumination, we have to turn off the Auto Light (Render Settings > Options > Auto Light > Off). I then suggest you also disable the Antialiasing (AA) parameters (Render Settings > Antialiasing > None), as this will allow you to save time during the rendering phase. We will enable the AA for our final render (Fig01).

2. Before inserting sunlight, add a Sky object in the scene and then assign it a material that has a Gradient as texture in the Illumination Channel (Fig02). This Sky object will generate the Global Illumination.

3. Fig03 shows the Global Illumination settings that I'm going to use for our renders tests. I decreased the Accuracy to 1%, the Prepass Size to 1/10, the Stochastic Samples to 100, and the Max Resolution to 50. This will allow us to save a lot time during the rendering phase. You will notice from the render on the top left of the image that the only Sky object cannot represent the illumination system, so we need a light source that can simulate the sun...

4. So, let's now insert into the scene an Infinite

Fig 01
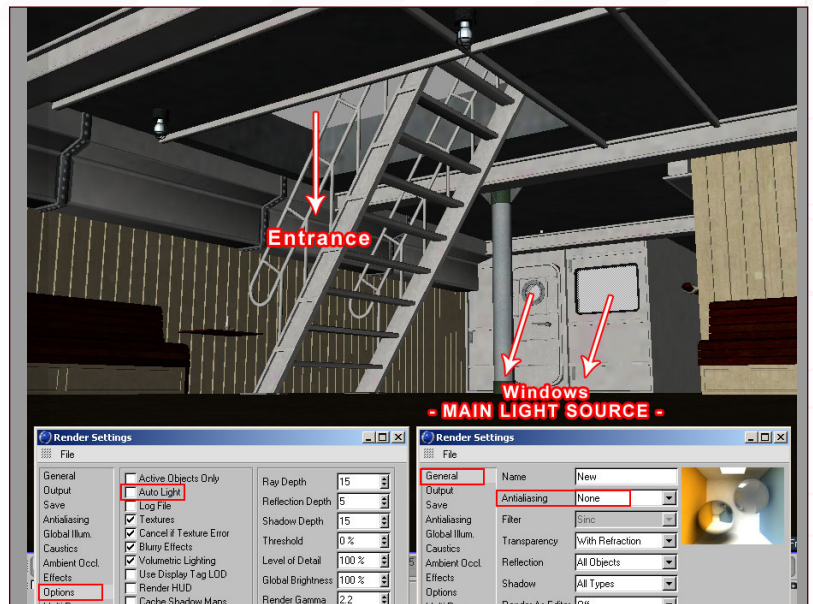
Fig 02
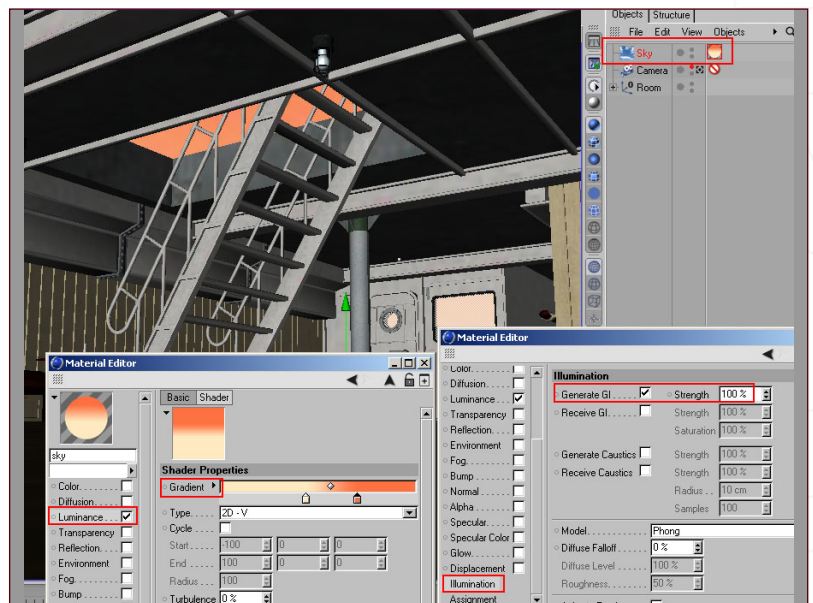
Fig 03
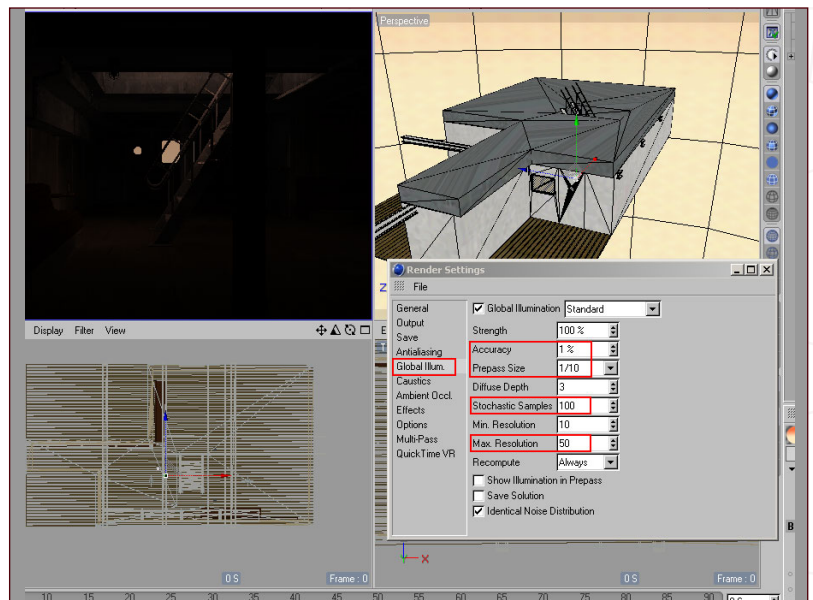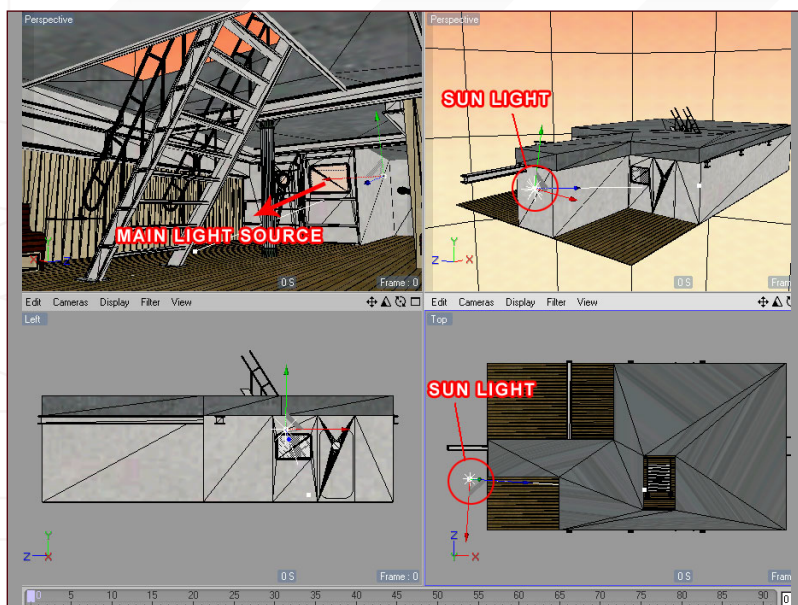
Fig 04

Light (Objects > Scene > Infinite Light) and position it as shown in Fig04. We will make the sun visible through the window, as this will give the scene a really nice effect.
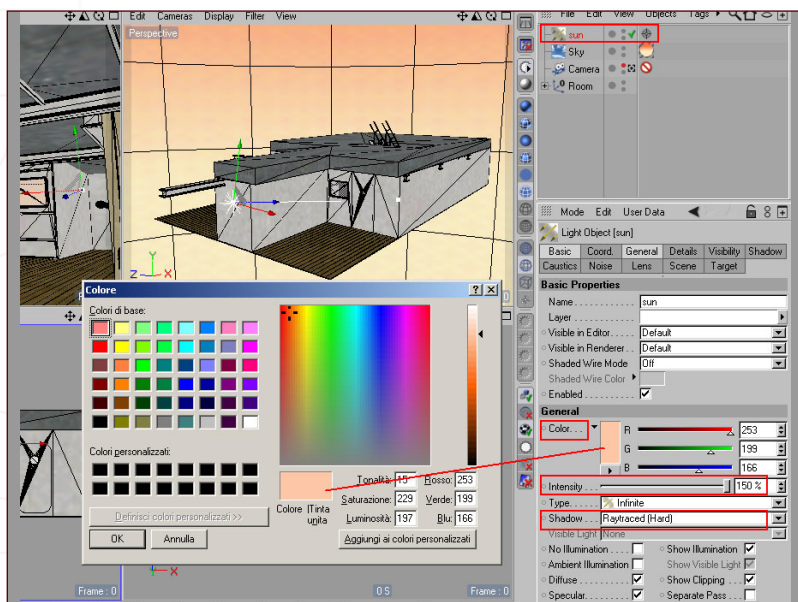
Fig 05

5. In the properties of the Sun light, change the default colour to a bright orange, as shown in Fig05. Increase its Intensity to 150% and choose Shadow as the Raytraced type. I have already explained how shadows work in reality in the previous part of this tutorial series, but I'll repeat it a little for you here, too.

In reality, when an object is illuminated by the direct light of the sun, it will cast clean shadows; their edges will be defined. However, when an object is illuminated by indirect light, its shadows will be blurred and its edges will be less defined. The definition of the edge of the shadow also depends on the height of the objects.
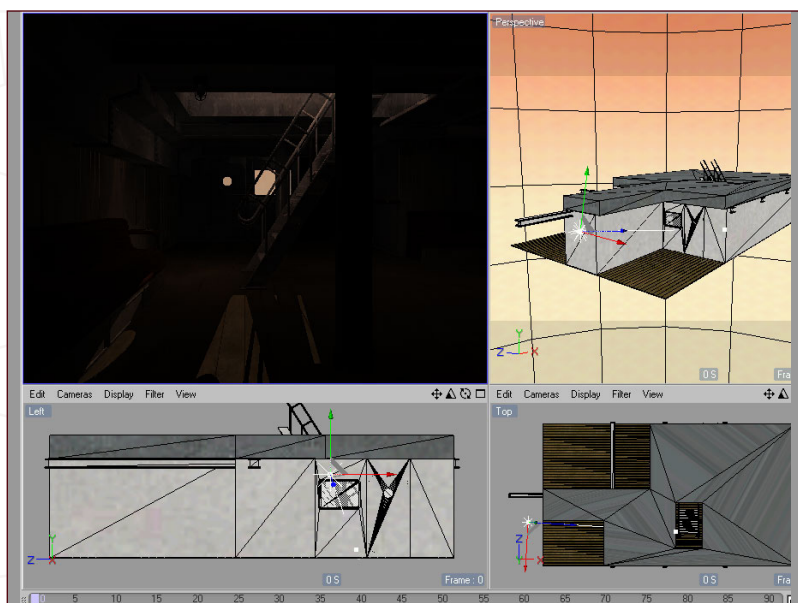
6. Let's now make a test render. You will notice from Fig06 that the sunlight comes in through the windows and generates the shadows (notice their edges are well defined). The Sky generates the GI that comes in from the opening on the ceiling. Of course, the cabin is still too dark like this so we are going to have to add another light...

Fig 06

7. Insert a new light into the scene. Position

it in correspondence with the entrance on the ceiling, as seen in Fig07. I named this new light, "Glass Window". This light has the job of better spreading the light from the Sun. Think about an object that, when hit by sunlight, it multiplies the light as a sort of amplifier or multiplier.

Fig 07
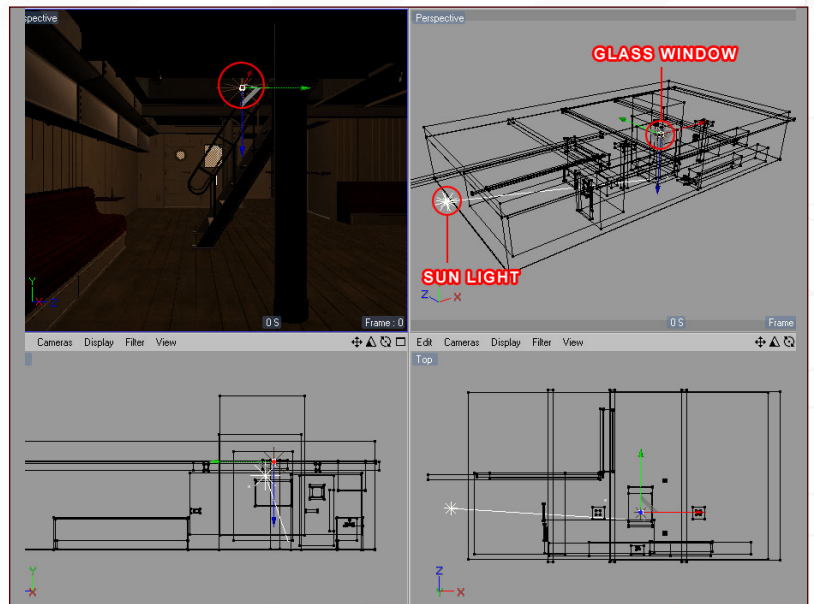
8. In the properties of the Glass Window light, change the default parameters as shown in Fig08. The type must be Area.

Fig 08
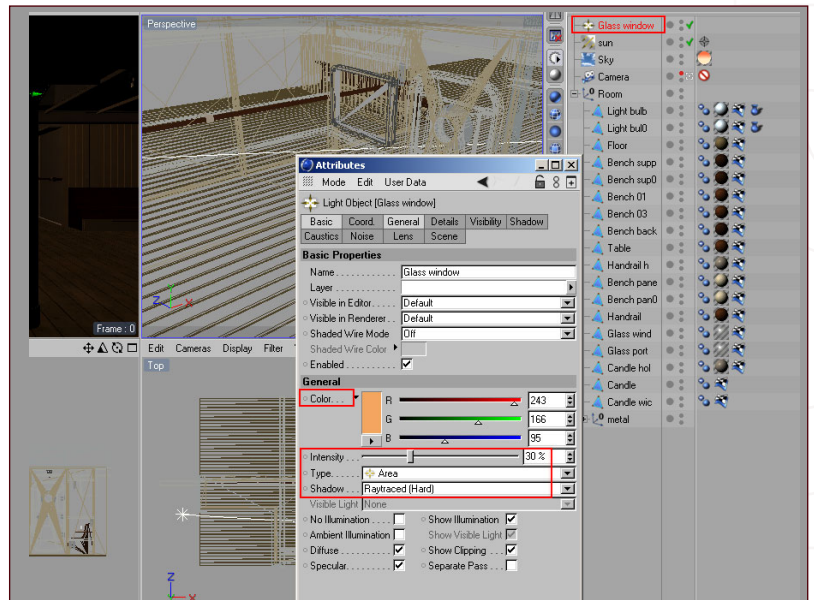
9. Still in the properties of the Glass Window light, go into the Details panel. Change the default Area Shape (Rectangle) to Object/ Spline, and then drag and drop the Glass Window object into the Object box (Fig09). This will allow us to obtain the Glass Window object as a light emitter. You can obviously control the quantity of light produced through the Samples. In this case, we have 40 as the value of the Samples. (Think about 40 points distributed on the object's surface and each point generates light...)

Fig 09
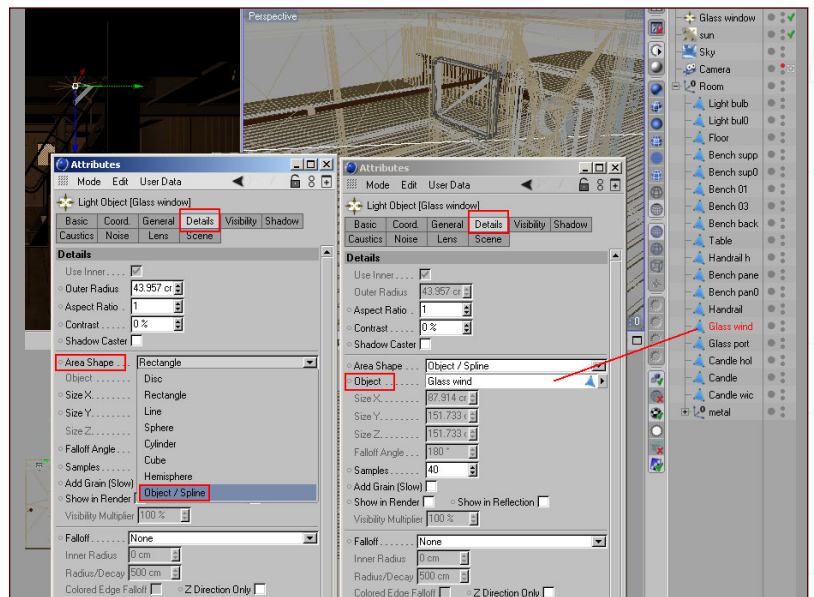
10. Add another light, like the previous one (you
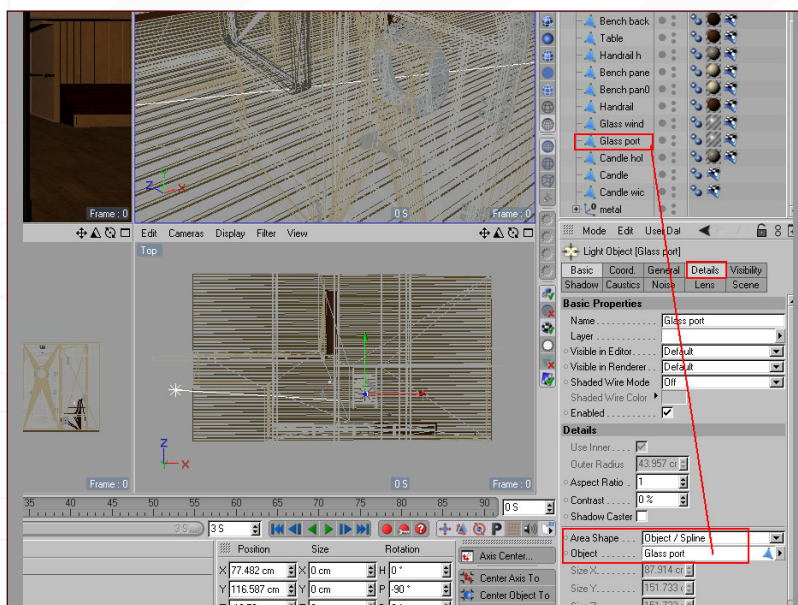
Fig 10

can copy the Glass Window light), and rename it "Glass port". In the Details panel, change the Object to Glass port object.
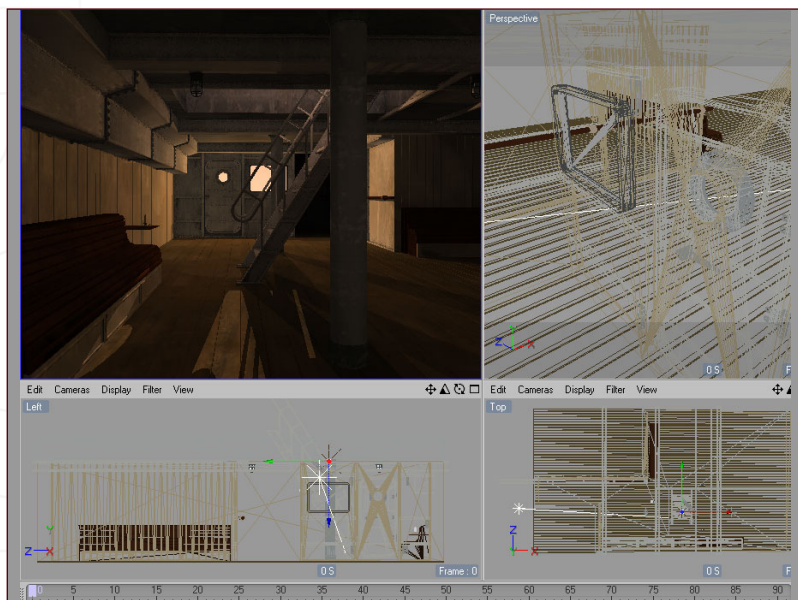
Fig 11

11. Time for another render, now (Fig11). Not so bad this time, but we still have some work to do on the lighting...
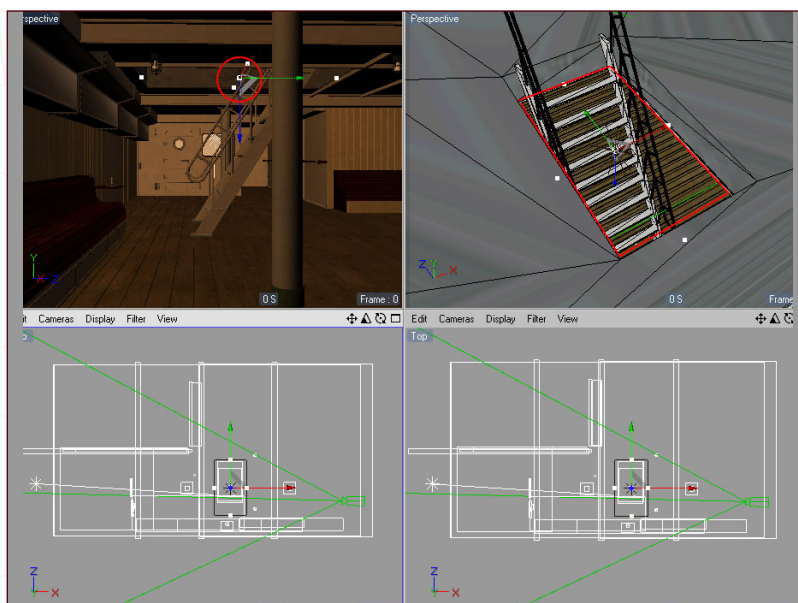
Fig 12

12. Add another light, call it "Window", and position this light in correspondence with the opening on the ceiling. In the light properties, change the default type to Area. The size of the light must cover the whole area of the opening, and the light has to be positioned in correspondence with the bottom edges of the hole, as shown in Fig12.

13. Still in the properties for the Window light,

change the Colour, Intensity and Shadow parameters, as seen in Fig13. For the Shadow, choose the Area type (this shadow is the blurred type that we discussed in paragraph 4 of the previous tutorial part). Now, you should notice from the cabin that there are some objects which are being directly hit by the Sun light, and these objects will cast Raytraced shadows. The rest of the cabin will cast soft shadows, thanks to the Area light.

Fig 13
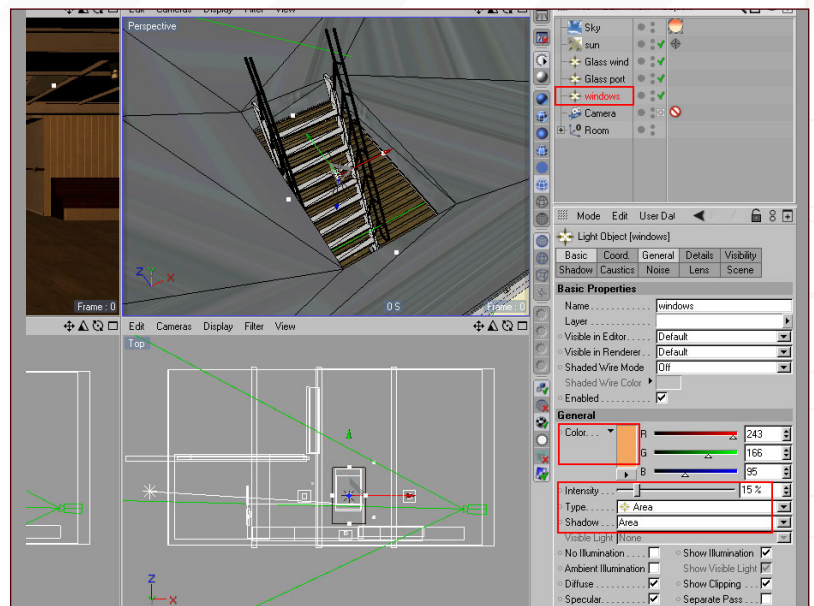
14. Let's make another render to see how things are going (Fig14). The light we just added has the job of better spreading the light from the Sun, as with the Glass Window and Glass port lights.

Fig 14
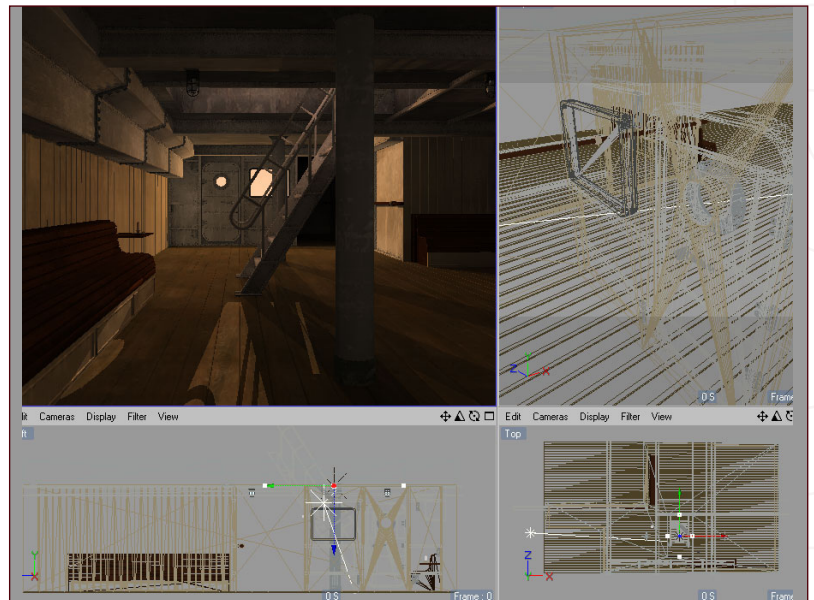
15. Earlier, I mentioned that the Sun light will be visible through the window near the door. In order to achieve this, we need to add a Lens to the Sun light. In the properties of the Sun light there is a parameter called Lens, as seen on the left of Fig15. Go into its control panel and open the Glow's menu by clicking on the box; a list of the types of glow will appear. I chose the "Sun1" type, as shown on the right of image.

Fig 15
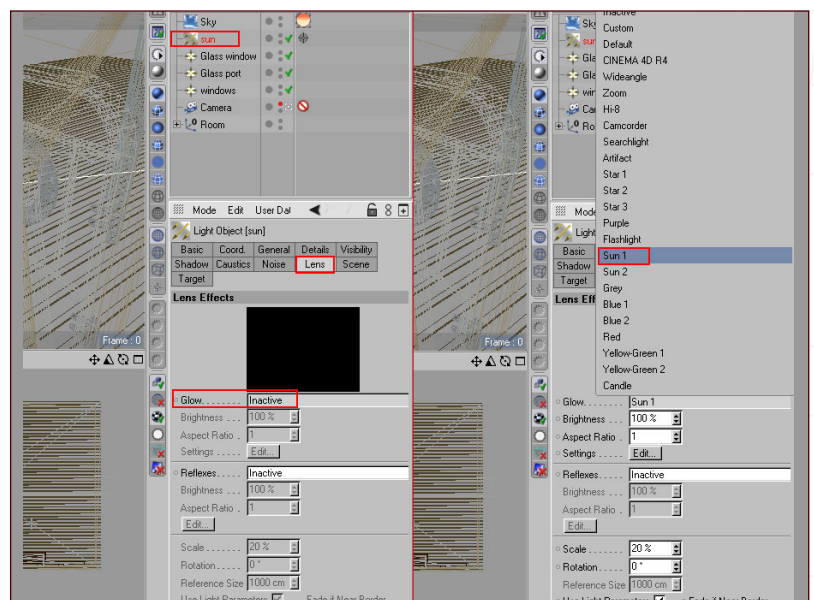
16. Clicking on the Edit tab will open up the
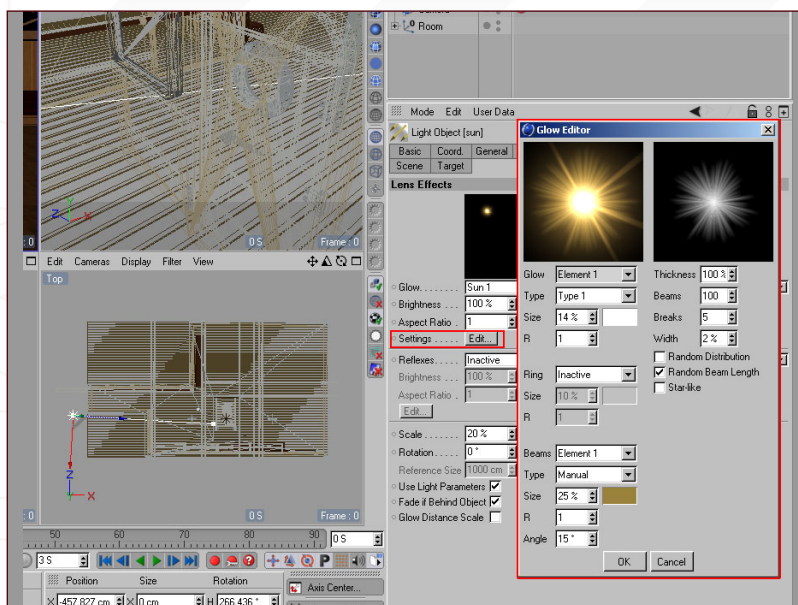
Fig 16

Glow Editor (Fig16). Here you can modify the glow.
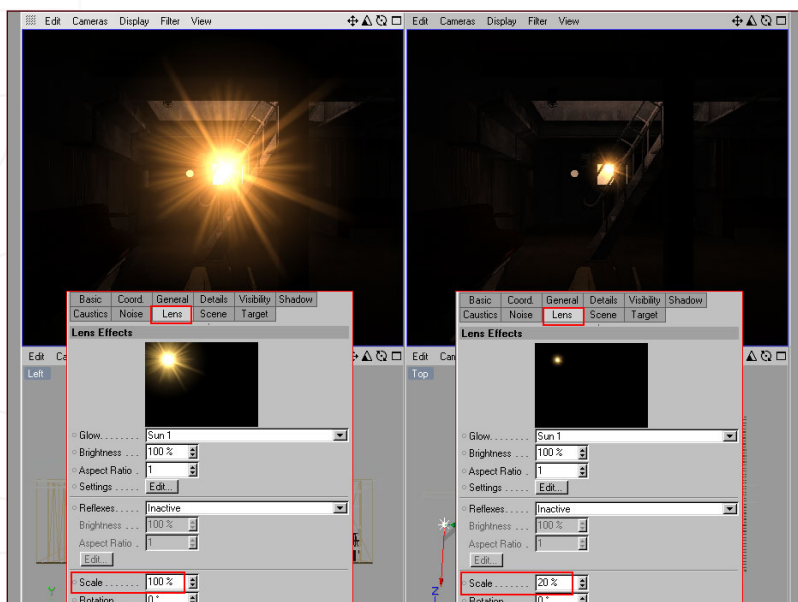
Fig 17

17. After you have modified the glow according to your tastes, make some test renders in order to find the right size of the lens. For example, on the left of Fig17 you can see the lens at 100% of the Scale, whilst on the right of figure I decreased the Scale to 20% (I turned off the Glass Window, Glass port and Window lights to save time during the rendering phase).

That was the last thing to do in order to complete our lighting rig.
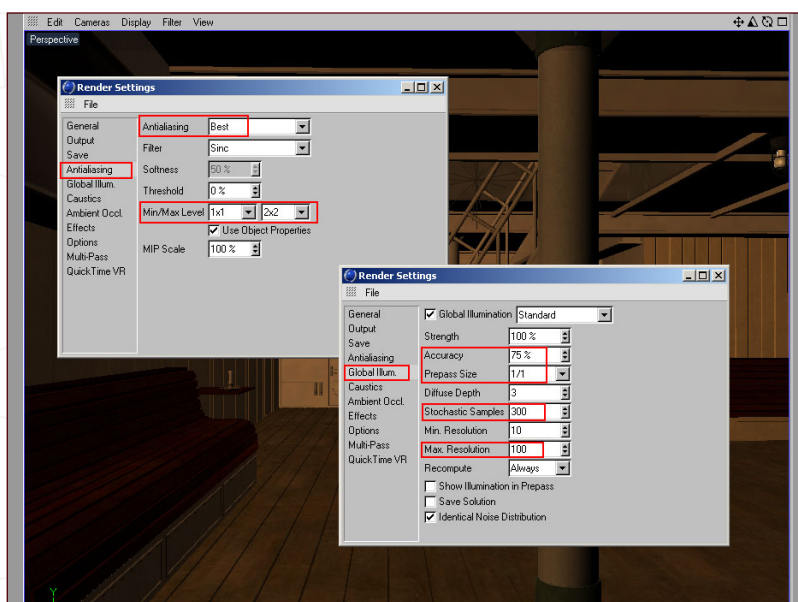
Fig 18

18. Now we are ready for our final render. Before we do this, we need to enable the AA (antialiasing) and we need to increase the parameters of GI (global illumination) (Fig18). That's all for this month. I hope you have enjoyed this part and I'll be back next monthwith

3D environment lighting

lightwave

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NATURAL EXTERIOR LIGHTING
PART 2 - SUNSET

The last part of this tutorial series covered the creation of a "sunny afternoon". In this second instalment, we are trying to capture the mood of a scene during sunset...

Have a look at our scene (download can be found at the end of this tutorial; click on the Free Resources logo). We are using the same ship interior, so we have to follow the same principles as with the last part of the tutorial. The scene is fully closed with one large opening in the roof, plus 2 little windows in the door (Fig01).

We want the sun to shine in from behind, through the big window. Change the default light to Area light and move it directly behind the window. Use an orange colour for the light and an intensity of 250%. While dealing with the light settings, also change the Ambient light to a blue colour and the intensity to 3% (Fig 02).

Note: Generally, you would use yellow to red colours for warm light, like the sun, and blue colours for cold light or shadows. However, you should try to maintain a balanced look and not overuse these rules. These are just very subtle effects.

As the sunlight shines directly into the camera, it is a good idea to use lens reflections. In general, you should be careful with the use of lens flares. It is a very common effect which is supposed to make your CG image more realistic, but the result can often look more "CG" than without it. In our scene it makes sense to have one, but we will try to use it very subtly. Have a look at our settings (Fig03); use a Flare Intensity of 50% and a Ring Size of 10.0%. We also use a Star Filter with the setting 10+10 Point.
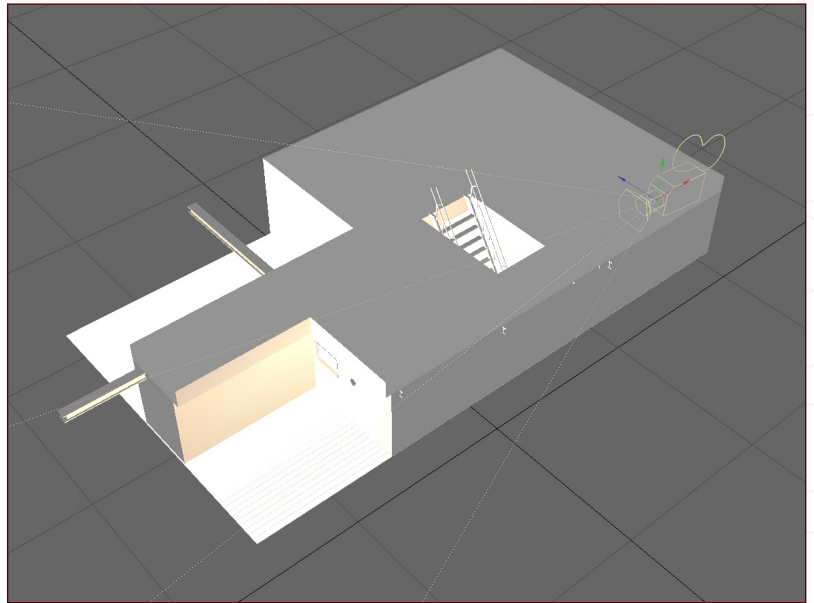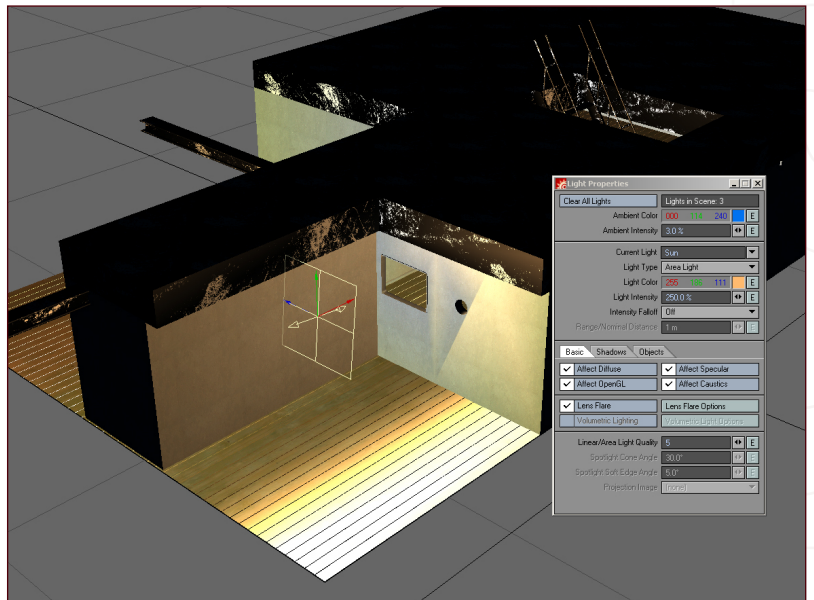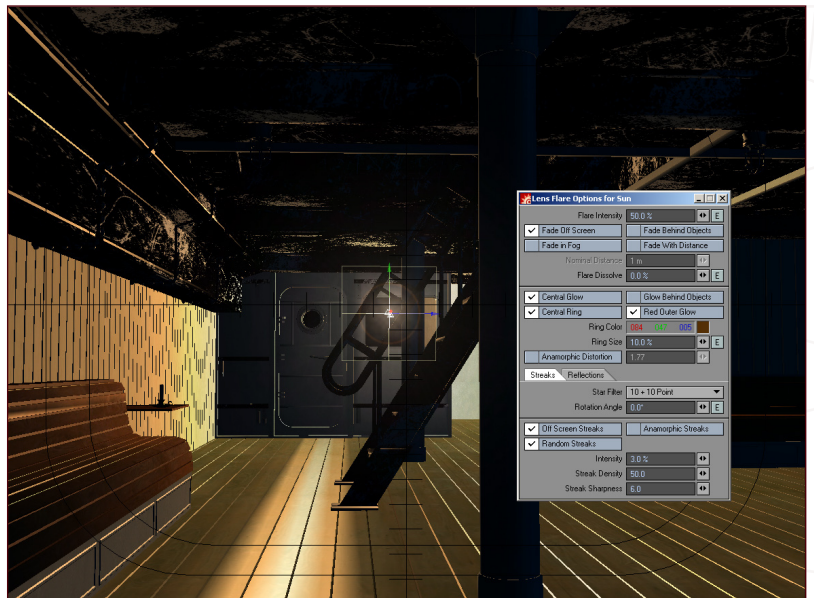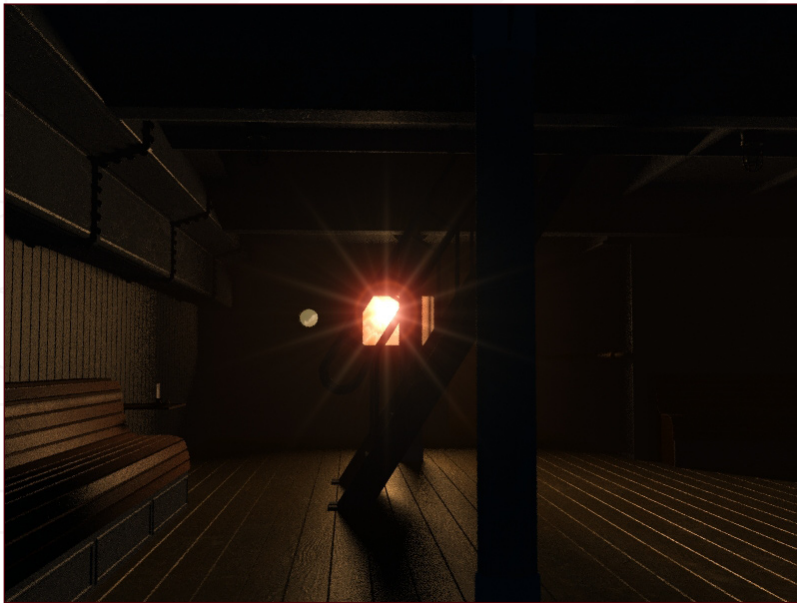
Fig 04

Now make a test render (Fig04). The lens flare looks good, and the overall look is OK, too. But there are many elements hidden in the shadows, so we need to bring in more light...
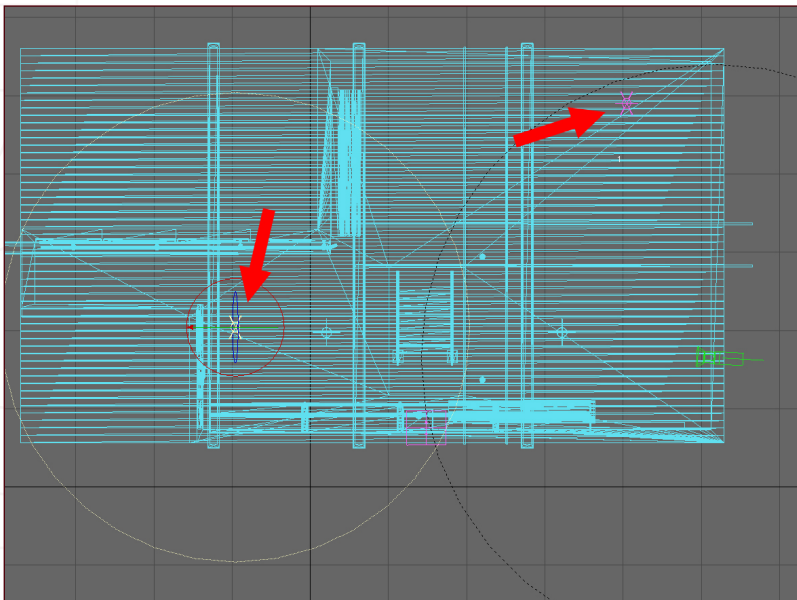

Fig 05

Add 2 Point lights; one for light that comes through the side window and the door (called "Fill"), and another one to simulate diffuse light in the dark part of the room (this one is called "Shadow"). As you can see, both lights are inside the room and only serve to brighten certain areas up like ambient light (Fig05).
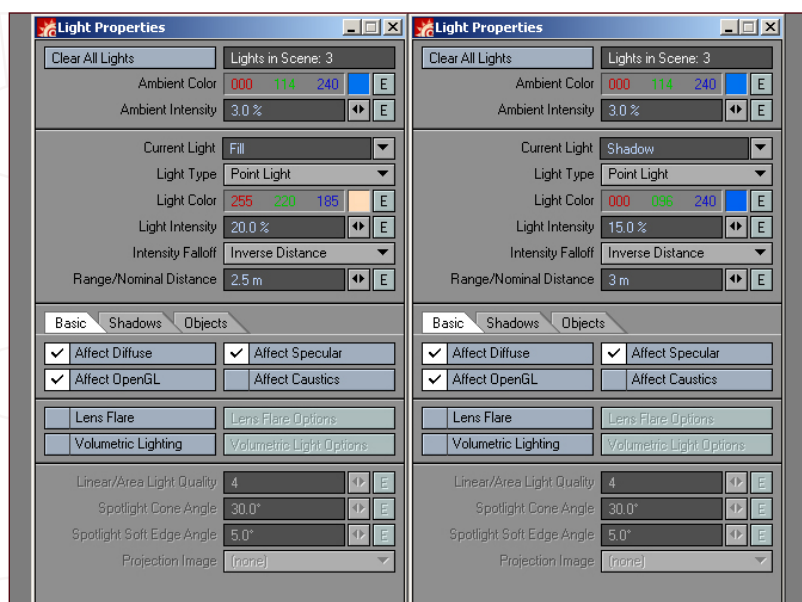
Fig 06

The Fill light is given a light orange colour, as it is supposed to be the sunlight coming through the window. It has an Inverse Distance and a Range of 3m. The Shadow light gets a very light blue colour (almost white). The Intensity Falloff is also set to Inverse Distance and the nominal range is 3m. This makes the light very strong across the whole room. The Light Intensity for the Fill light is 20%, and for the Shadow light it is 15%. Shadow Type is set to Off (Fig06).

Make another test render (Fig07). This already looks a little better, although we should work a little more on it. We are now going to use Radiosity to add some diffuse light...
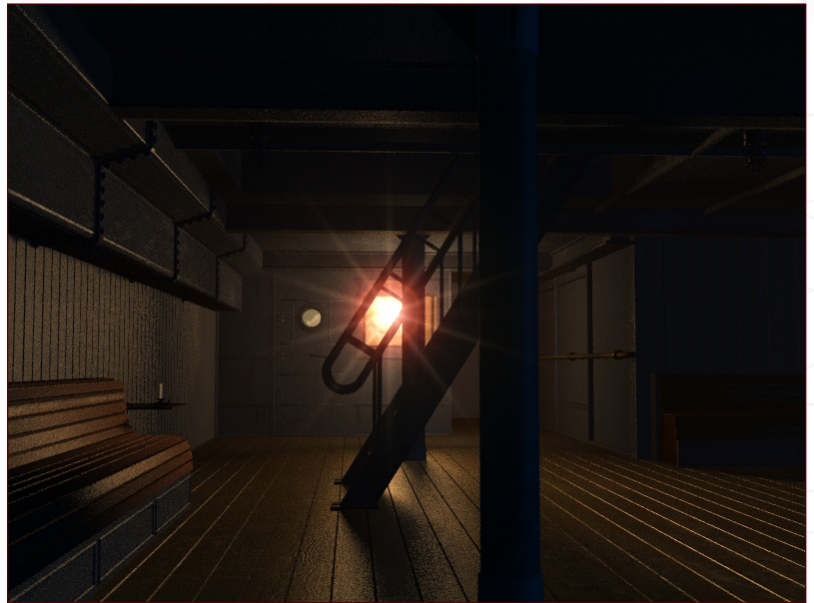
For Radiosity we need a bright background. Go to Backdrop and create a Gradient. I am using a strong orange for the Sky Colour; the other gradient colours are shades of blue. We are also using a slight haze effect, typical for a low sun. For this, go to the Volumetrics Tab and add Fog. Fog Type is set to Realistic, Min Distance is set to 3m, and Max Distance to 60m. Maximum Amount is 40%, and the Fog Colour is a strong Orange, again (Fig08).

Fig 08
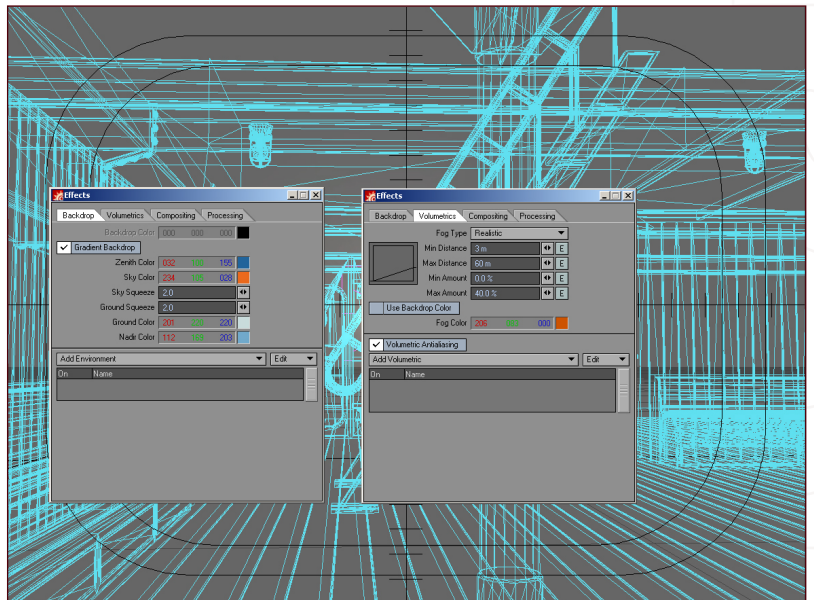
Next we go to the Render Globals, where we click on Global Illumination and check Enable Radiosity. The Type should be Final Gather. Make sure to check Interpolated and Cache Radiosity. The Intensity should be at 160%. We use 55 Rays Per Evaluation. Indirect Bounces should be set to 1, Tolerance to 0.2, Minimum Evaluation Spacing to 10 mm, and Minimum Pixel Spacing to 1.0 (Fig09).
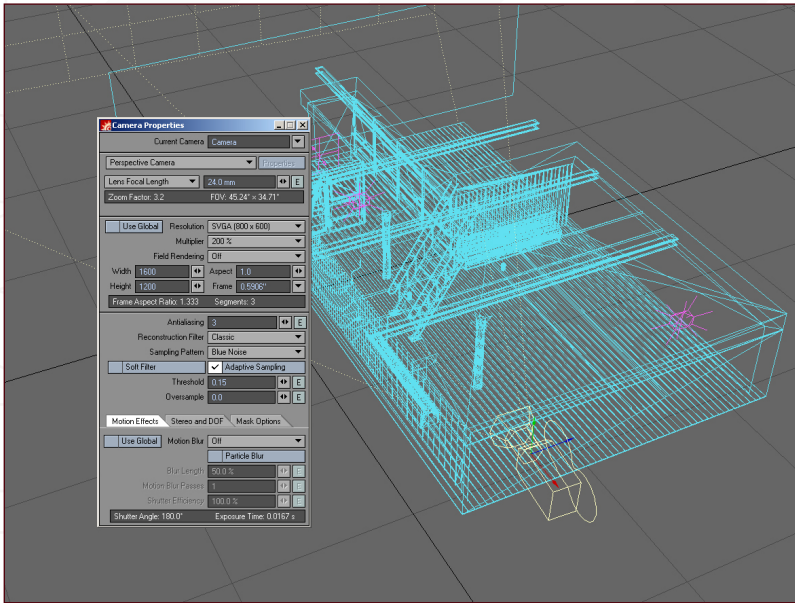
Fig 09
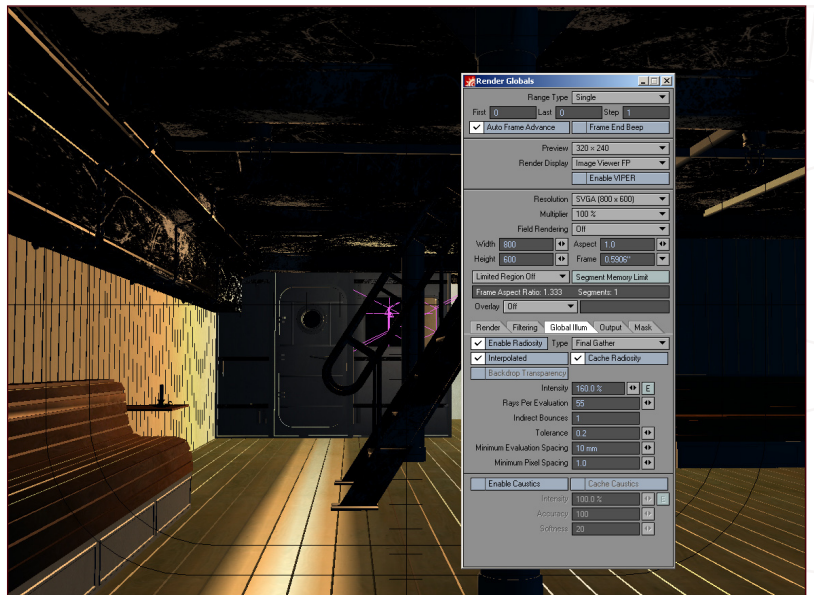
Fig 10

Before we can make another test render, check the Camera Settings, as they also influence render times vs. quality. The camera is a Perspective Camera, Antialiasing Level is set to 3, and Adaptive Sampling should be checked with a Threshold of 0.15 (Fig10).

Fig 11

The render is now starting to look like the real thing (Fig11) ...
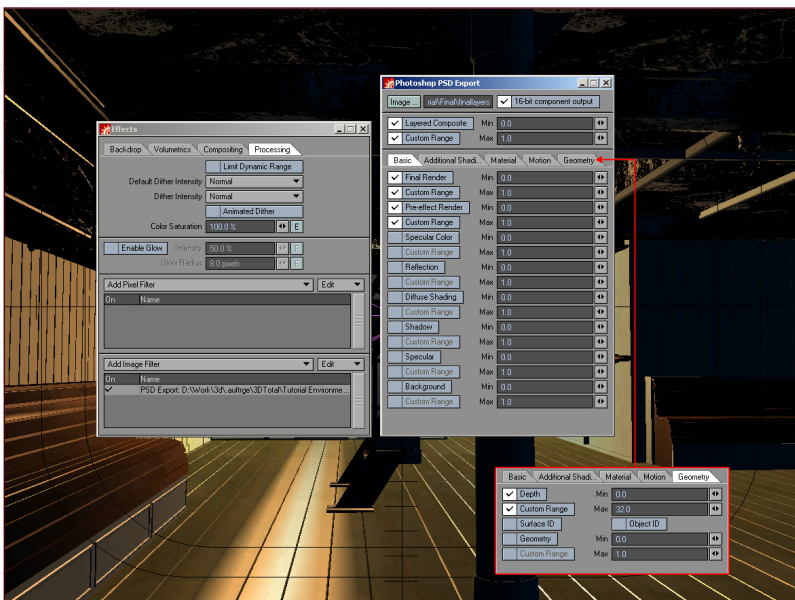

Fig 12

When you render your final image, make sure to go to the Processing tab and add the image filter "PSD Export". This outputs your render in passes, all in one handy Photoshop PSD File. Simply choose a path where the image should be saved and check at least Layered Composite and Depth. Render the image again, but this time use a higher Antialiasing setting and your final resolution. Make sure you use Render Scene with the image range 0-0 so that only 1 image is rendered (Fig12).

Now it's time for the AmbientOcclusion Pass. This is a separate black and white render that is multiplied onto your normal render in an image editor. In Material Editor, add the shader "SG_AmbOcc_Exp" to all your surfaces. You can leave all settings as the default values. Make sure you disable Radiosity for rendering (Fig13).
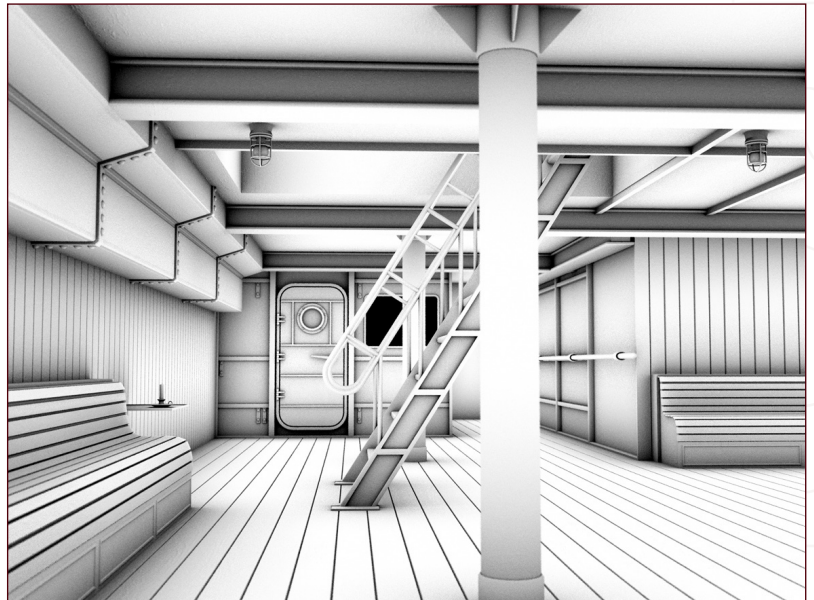
Note: SG_AmbOcc_Exp is a free Ambient Occlusion plug-in that you can find and download via the great **www.flay.com** database.


Fig 13
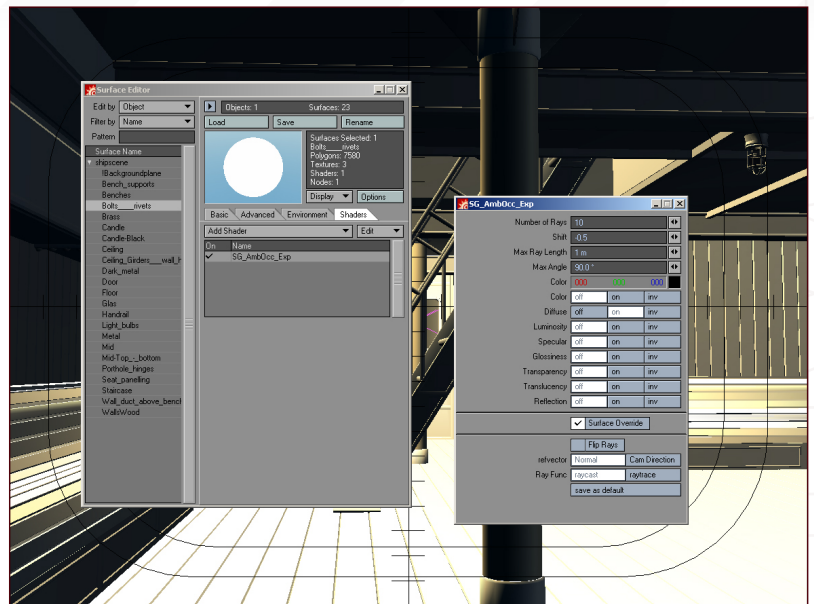
Now have a look at the rendered image: all corners, edges and other places that are hard to reach for light rays are darker, and places where light can shine on freely on them appear white (Fig14).

Fig 14

Now go to Photoshop (or any other image editing software supporting the PSD format and layers), and open your layered composite render. As you can see, you can now manipulate the different layers individually. For example, you could turn off the lens flare or make it bigger or smaller. You can easily tweak every aspect of your image. We are pretty satisfied with the overall look so we can now do some other stuff with this...
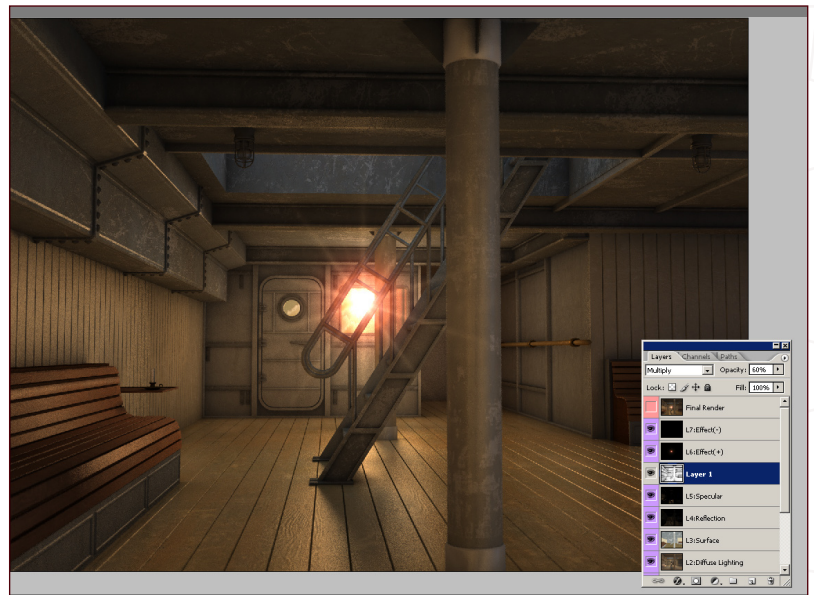
Load the Ambient Occlusion image and copy it as a new layer to the composite render. Move the new layer below the lens flare and change the opacity to 60% (Fig15).
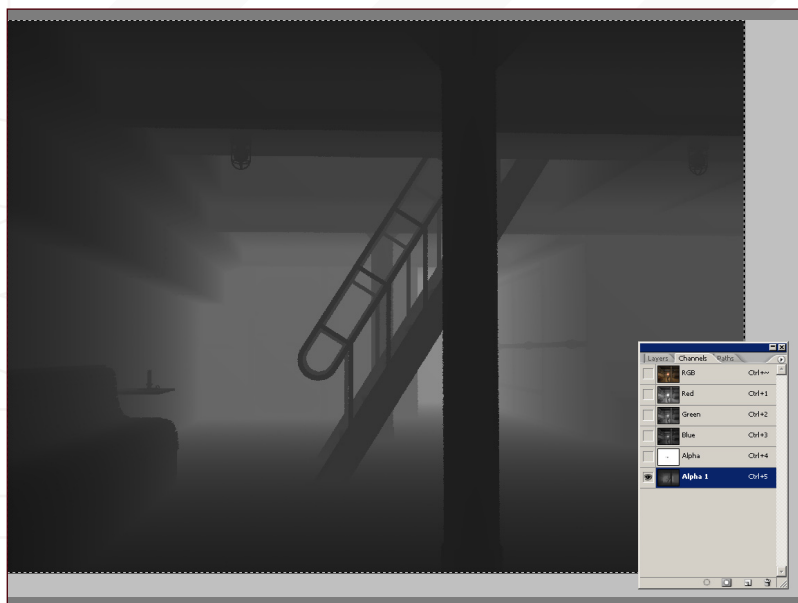

Fig 15

Fig 16

At the bottom of the layers you will find the Depth layer. Select everything and copy the depth layer only. Then go to the Channels tab and make a new layer. Now paste the depth map as new Alpha channel (Fig16).
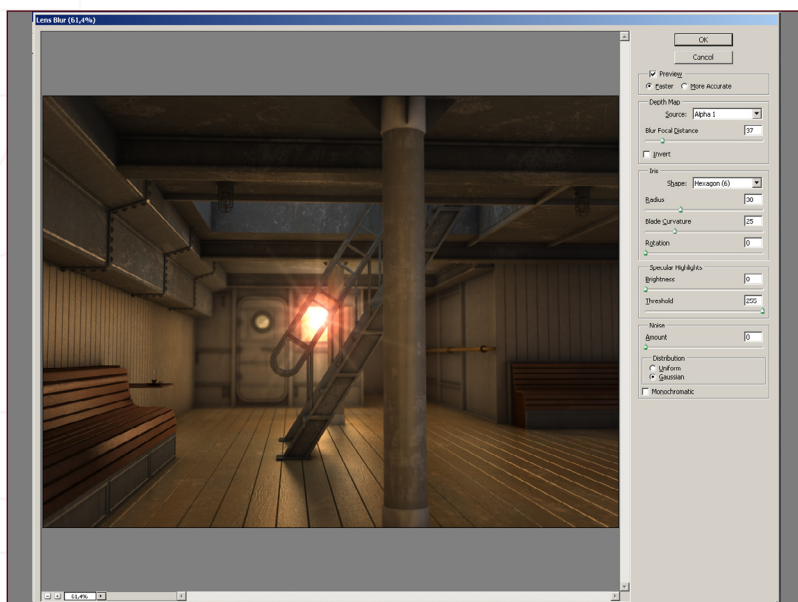

Fig 17

Select the RGB channel again. After you are done with your image manipulation, flatten all layers. We are now going to add some Depth of Field. Go to Filter > Blur > Lens Blur. For Depth Map Source we use the Alpha 1 that we just created. Now simply click on the preview image and choose the point that is in focus (I used the ladder). The Radius setting determines the blurriness. I go for a setting of 30. The other settings can stay as they are (Fig17).

For my final render I added a red photo filter and changed the contrast a little. Feel free to experiment with your image a bit more at this stage. I think the final image resembles a twilight mood very well, so I can now decide to call this image done.

I hope you've enjoyed this tutorial. If you have any question or suggestions, just drop me a line via my website.
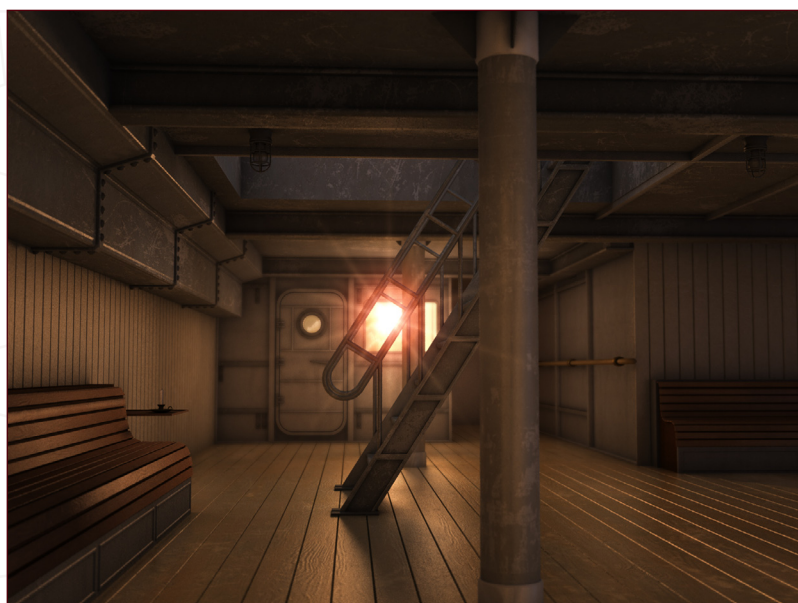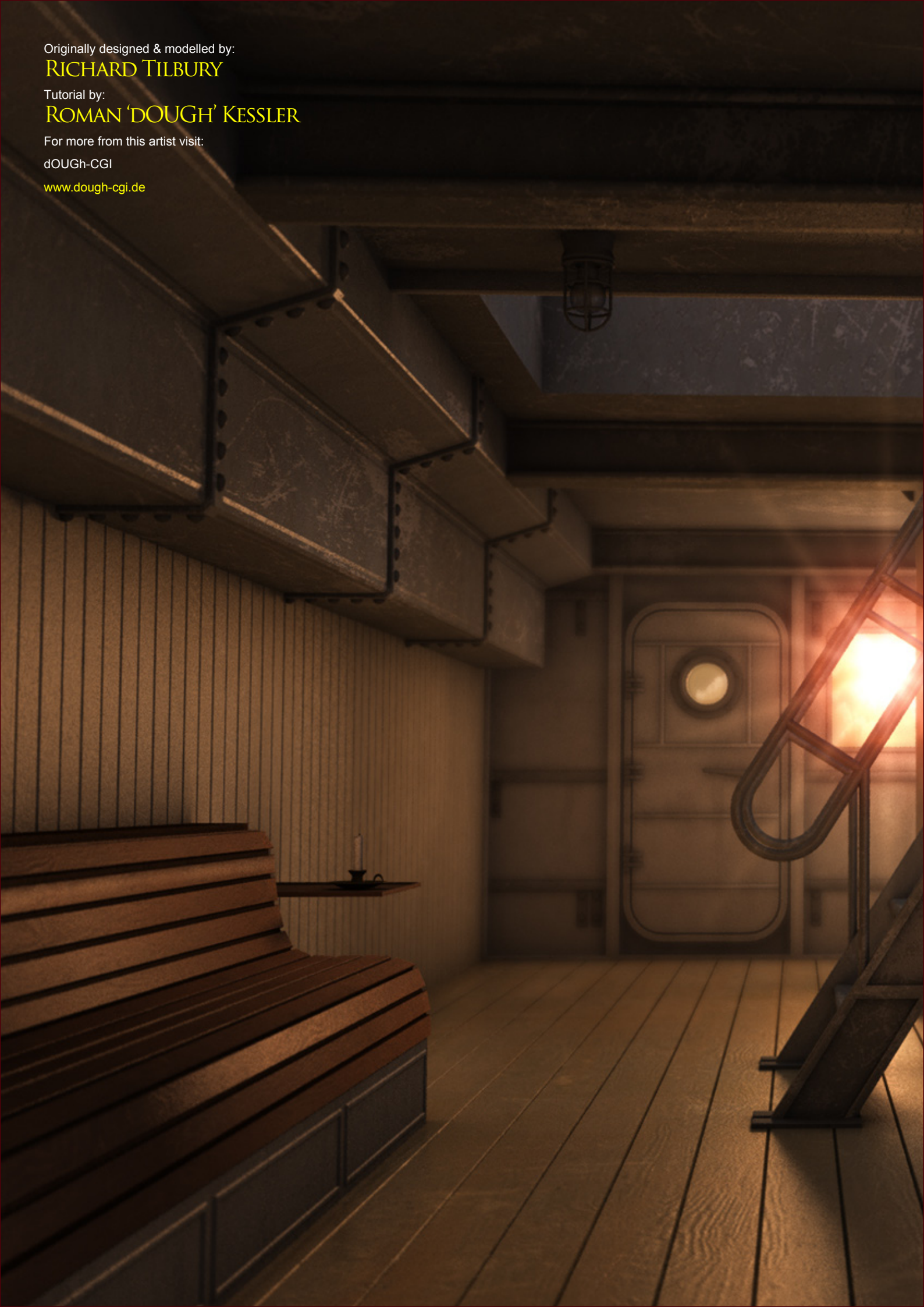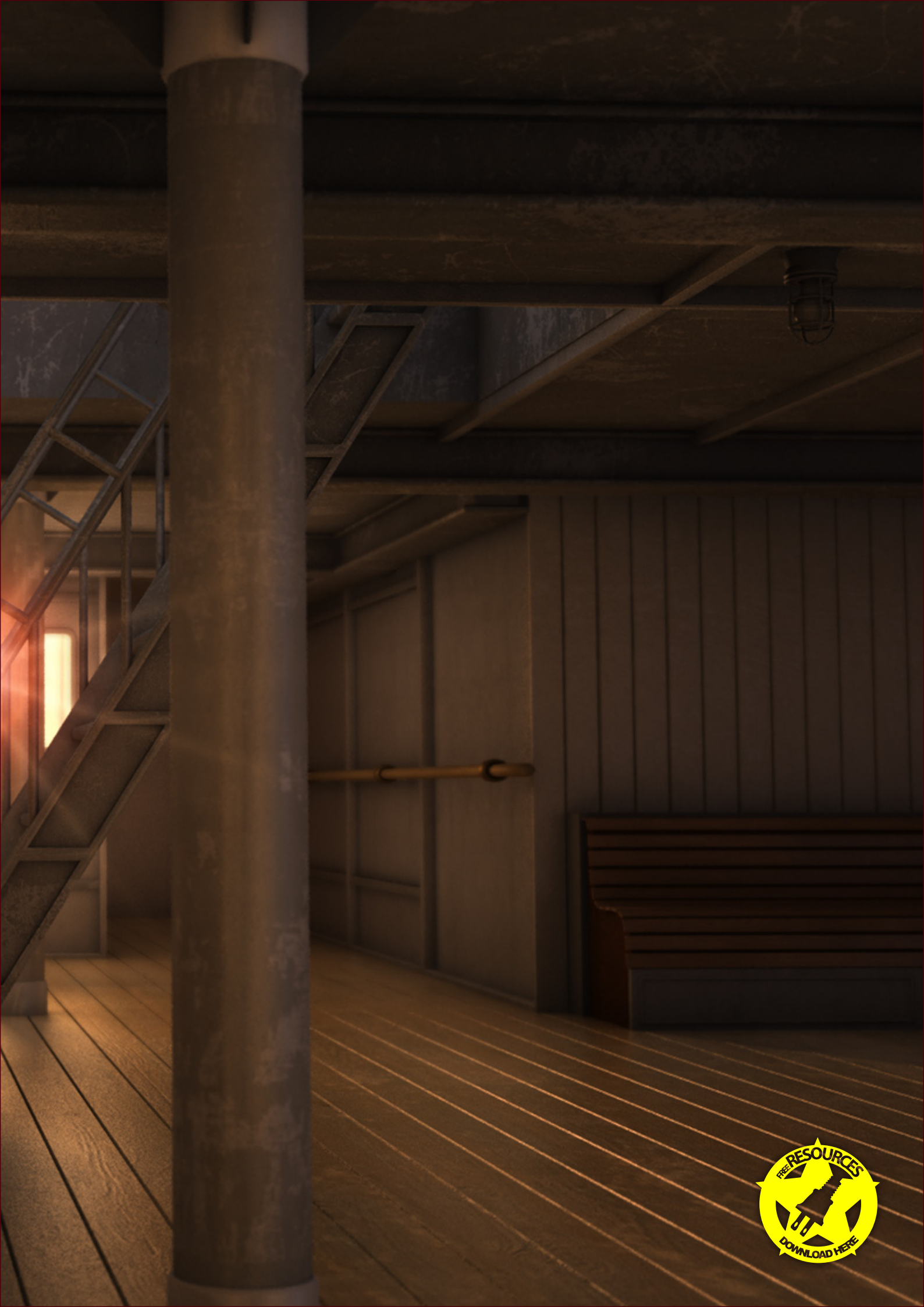
the shorts drawer

Introduction:

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the shorts drawer 2004

- Running Time: 3hrs 8 mins
- 27 Shorts movies
- 6 Clips & Trailers
- Region Free, NTSC & PAL versions
- Shorts & trailers from artist and studio like:
  Blur Studios
  Brian Taylor
  Marco Spitoni
  Patrick Beaulieu
  & Alex Mateo

the shorts drawer 2005

- Running Time: 3hrs 8 mins
- 27 Shorts movies
- 3 Trailiers
- Region Free, NTSC & PAL versions
- Shorts & trailers from studios such as:
  Blur Studios
  Keytoon Animations Studios
  Redrover Studios
  & Platige Image

- Loads of extra including images and storyboards
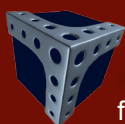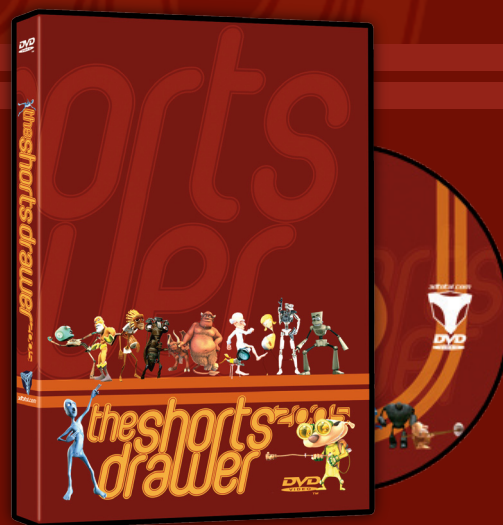
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3D environment lighting

Maya

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NATURAL EXTERIOR LIGHTING PART 2 - SUNSET

Welcome back aboard to the second part of the Environment Lighting series for Autodesk Maya 8.5. Again, we will be using Mental Ray for Maya for this challenging interior illumination, so all you need for this is to get your CPU at operating temperature and the basic Maya scene of our ship's interior (download can be found at the end of this tutorial; click on the Free Resources logo).

Before we can start, we need to properly set the project (Fig01). If you're not familiar with the use of projects, you might want to know that (one of) the main reasons for doing this is because of the relative texture paths that Maya uses. These relative paths ensure that we can import the scene from one file location (e.g. my computer) to another (your computer) without any hassle, as opposed to absolute paths which would always point to a static location that might differ from system to system.

So we're back aboard the MS No-Frills, still anchored somewhere in the Mediterranean Sea (Fig02). For this second tutorial, we will set our goals for accomplishing a twilight atmosphere, which would usually occur at either dusk or dawn.

Before we actually look at the scene, let's take a few moments to think about this very special situation (you might want to skip or come back later to this paragraph if you want to go straight to the execution). Twilight, from a technical point of view, is the time (usually around half an hour) before sunrise or after sunset. In this condition the sun itself is not visible; the sun's light is however scattered towards the observer in the high layers of the atmosphere, either by the air itself (Rayleigh-scattering) or aerosols. This scattering effect causes the beautiful and different colours that we enjoy every dusk or dawn. From an artistic point of view, twilight may happen in a variety of occasions, for
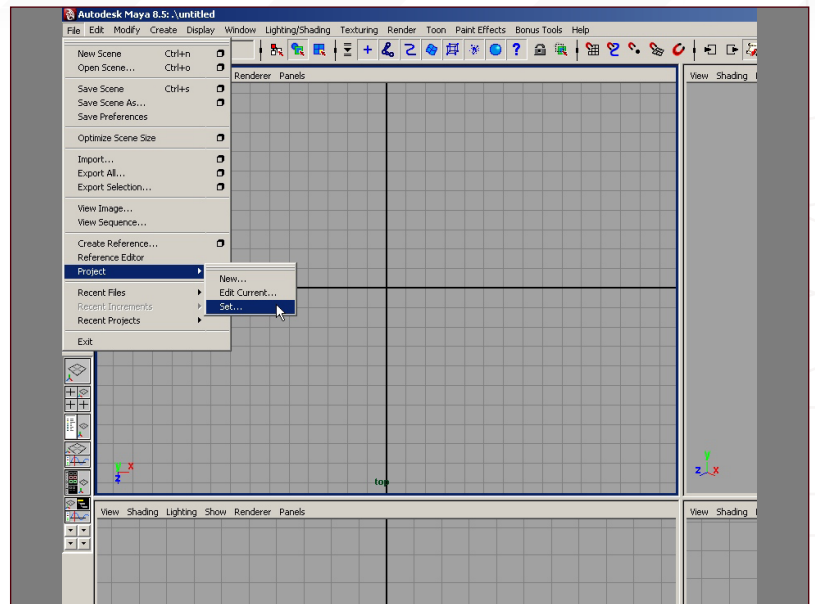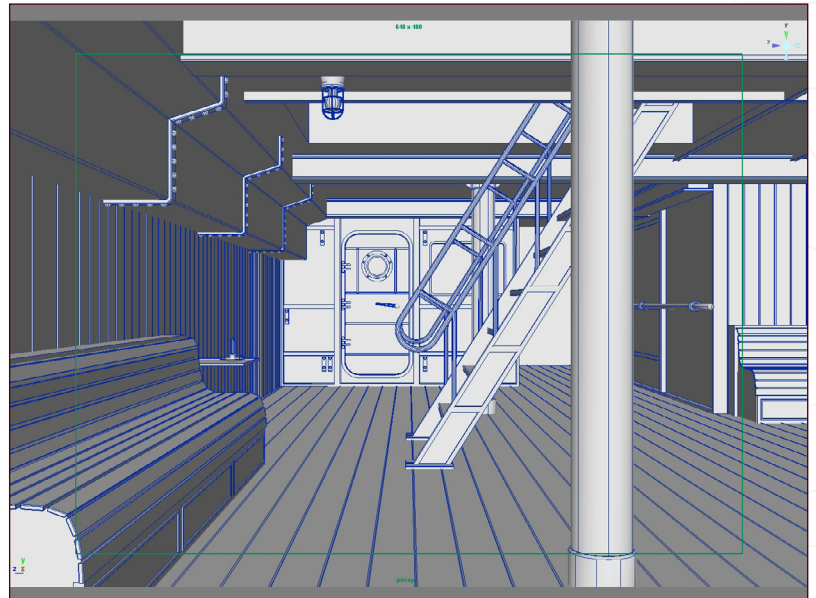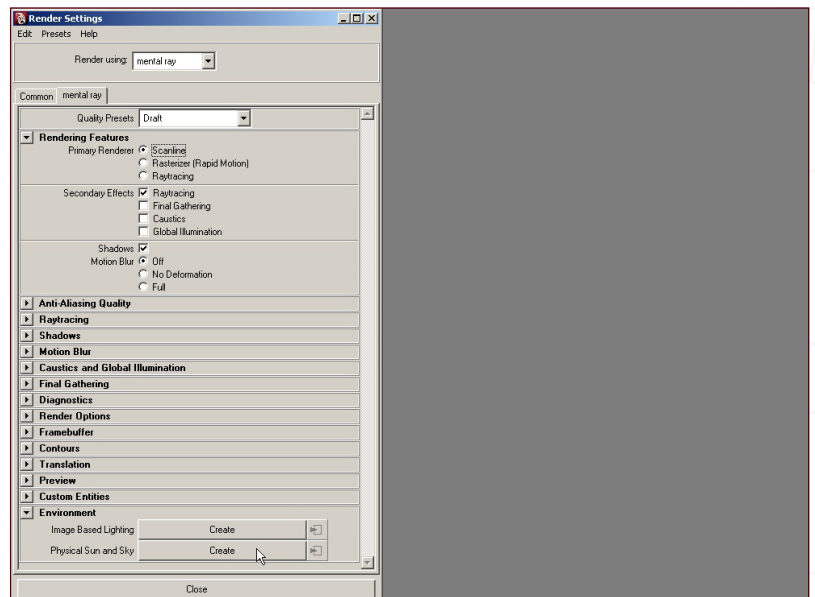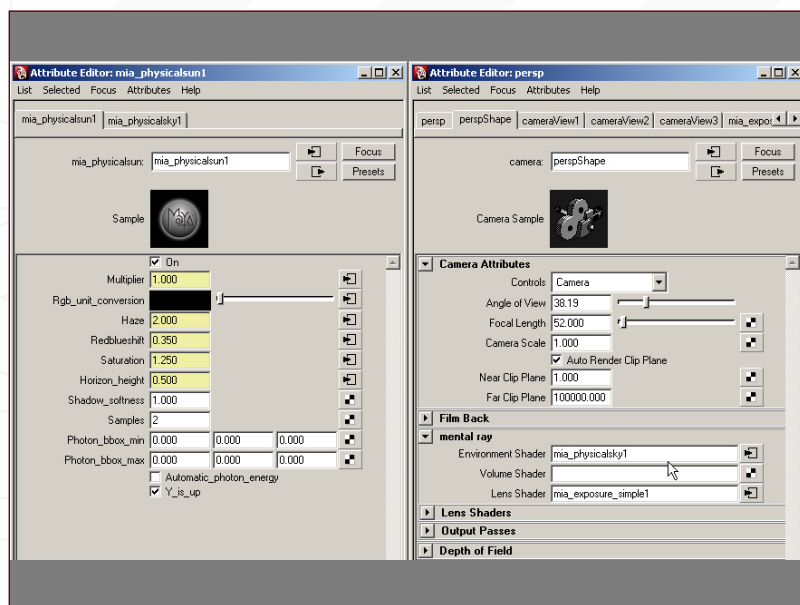
Fig 01

Fig 02

Fig 03

Fig 04

Fig 05

Fig 06

example in stormy weather, or when natural and artificial light sources meet - typically, whenever two (thus "twi") light sources or light conditions compete for predominance. (Imagine two wrestlers intensely fighting on the floor, and it's absolutely impossible to tell who's going to win the fight.) Twilight always has this dramatic sense to it, and often the dramatic colours as well. In the case of a storm, they might even range from greenish to deep blue. Usually, in the case of dusk and dawn, colours range from blue to purple, and from yellow to orange and red. The crux is that these colours are mostly equally dominant (and therefore leave us with great artistic and interpretational freedom), as opposed to any other lighting condition where there is usually one light source which is predominant. With this in mind, we are now ready to simulate the very particular case of twilight...
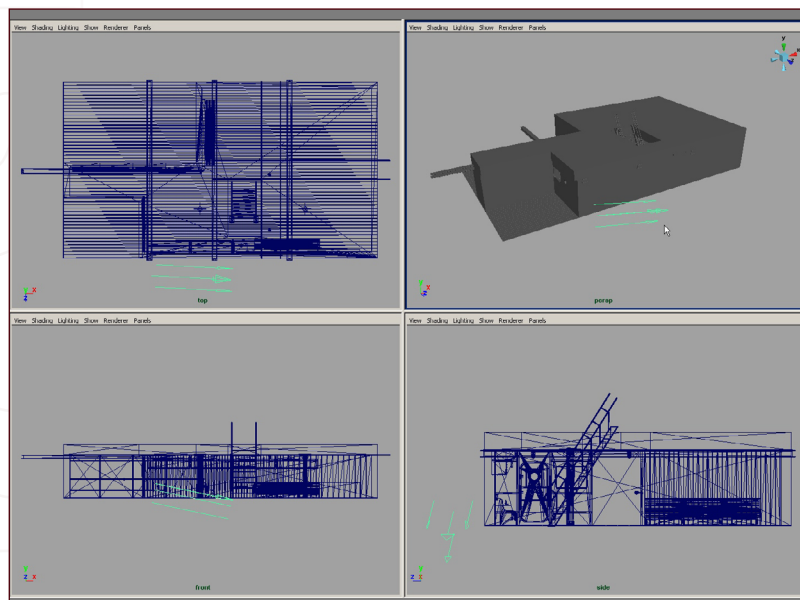
We will use the same base scene as used for part 1 of this tutorial (Sunny Afternoon), so all shaders and textures are ready to rumble. All surface shaders are made from the mia_material that ships with Maya 8.5. (You might want to read back to the Note on Shading featured in part 1 - Sunny Afternoon - which explains it's basic functionality.)

Again, we are using the newly introduced physical sun and sky system, which can easily be created from the Render Globals (Fig03). This button saves us time setting up all the nodes and connections to make the system work properly (thus it also turns Final Gathering On). It basically consists of three things: **the sun**, whose direction we control using the directional light (called sunDirection, by default) with it's light shader mia_physicalsun; **the sky**, which consists of an environment shader (mia_physicalsky) connected to the camera; and a simple, yet effective, so-called **tonemapper** (mia_exposure_simple), used as a lens shader on the camera (Fig04).
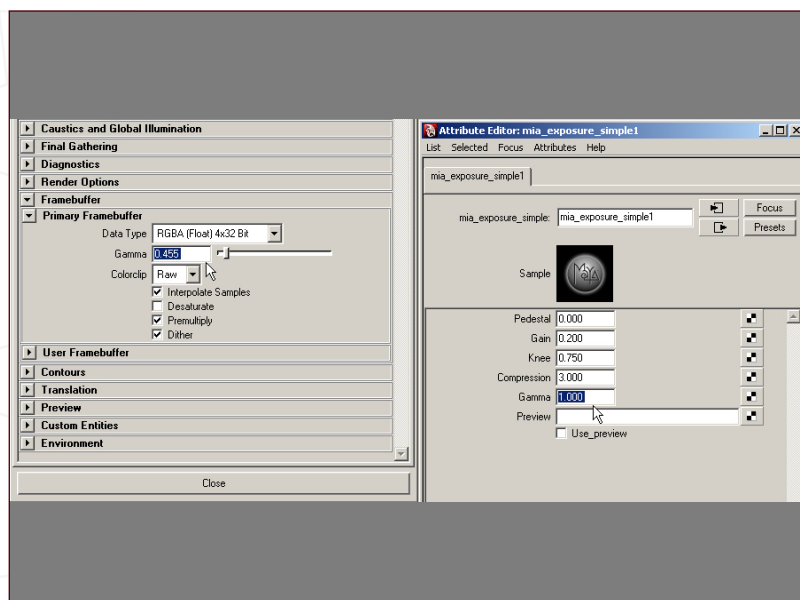
Before we start rendering, let's firstly think about a reasonable sun direction that would

fit our needs for twilight. It is very tempting to actually use an angle that leaves the sun below the horizon line, however this would yield a diffuse and so the lighting wouldn't be very dramatic. You might want to experiment with this a little, but I have decided to have a more visible indication of where the sun actually is. I rotated the sun on X 12.0, Y 267.0, Z 0.0; this makes the direct sunlight shine through the back windows, still providing a very flat angle. There's still one important point that we should consider before pushing the render button: the colour space. As already explained in the Note on the Colour Space in the first tutorial (Sunny Afternoon), we should make sure we work in a correct space, which is sRGB, or in our case an sRGB closely approximating 2.2 gamma curve.

The mia_exposure_simple already puts us into this space by default (the Gamma feature defaults to 2.2), but by doing it this way we double the gamma on our textures files, which by default are already in sRGB. That's a big secret that no-one may have ever told you before, but trust me - it's like that. So we either need to remove the gamma from our textures ("linearize" them) before rendering, which can be done with a gammaCorrect node in front of them in the shader chain with Gamma set to 1/2.2, which is 0.455 rounded, or we can use Mental Ray's internal gamma correction mechanism - which I prefer. So we abandon the mia_exposure_simple's gamma correction, simply by setting it's Gamma attribute to 1.0, and enable Mental Ray's mechanism by setting the primary framebuffer's Gamma to 1/2.2 = 0.455, in the Render Globals, as you can see in Fig06.

So we're ready to go and do the first test rendering (Fig07). As you can see, the scene is pretty dark and has a few errors caused by the insufficient ray depths. However, we are still using the Render Globals default Draft quality preset...

Let's now increase the raytracing depths to a reasonable amount (Fig08). The values you see
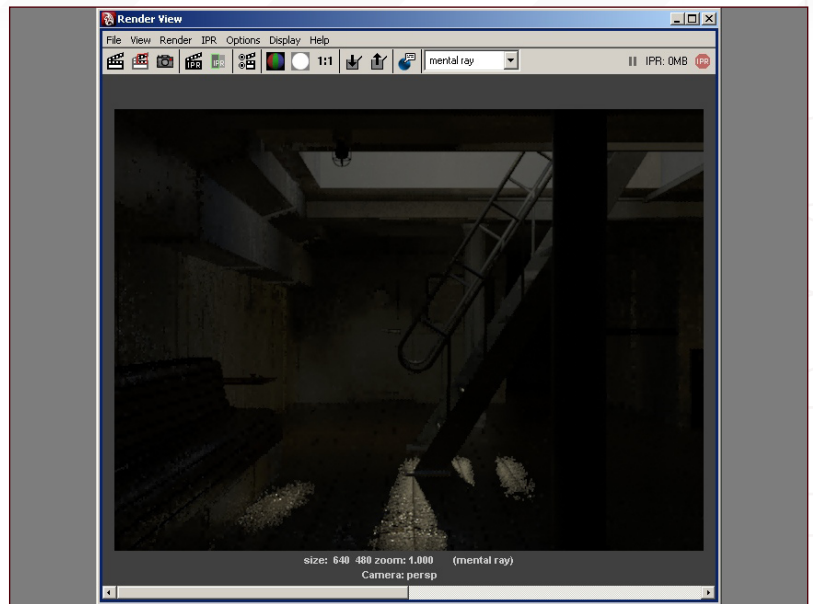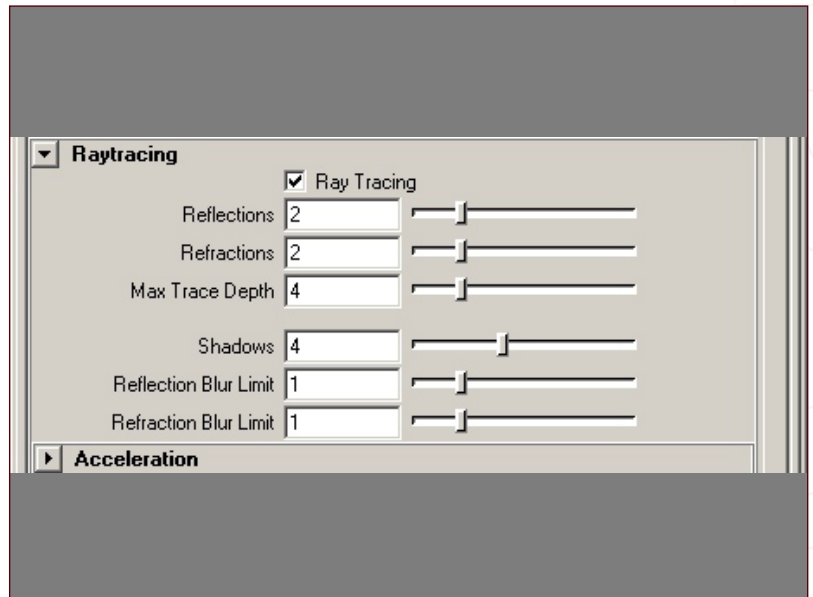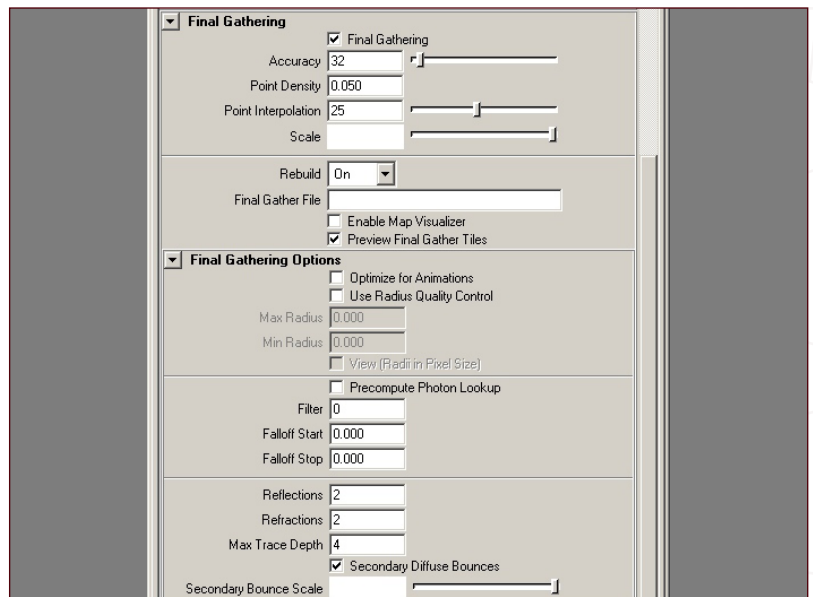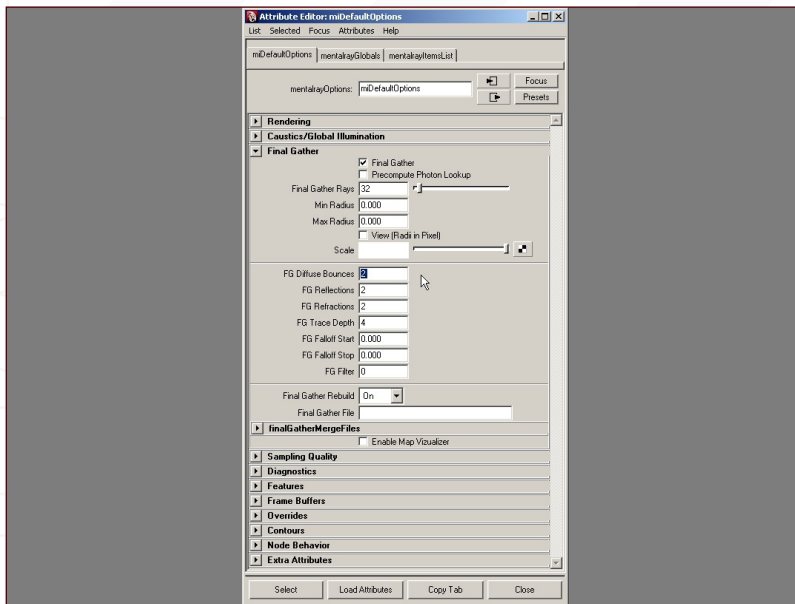
Fig 07

Fig 08

Fig 09

Fig 10

Fig 11

Fig 12

in Fig08 should satisfy our requirements; we might increase the reflection depth later on...

I also tweaked the Final Gathering settings to a lower quality (Fig09). This way, we get a fast converging - yet meaningful - indirect illumination for our preview renders. But besides lowering the general Final Gathering quality, I increased it's trace depths and, more importantly, turned the Secondary Diffuse Bounces button On. This button however only gives us a single bounce of diffuse light, as that's how they designed the Render Globals, but as I'm not satisfied with that let's go under the hood of the Mental Ray settings...
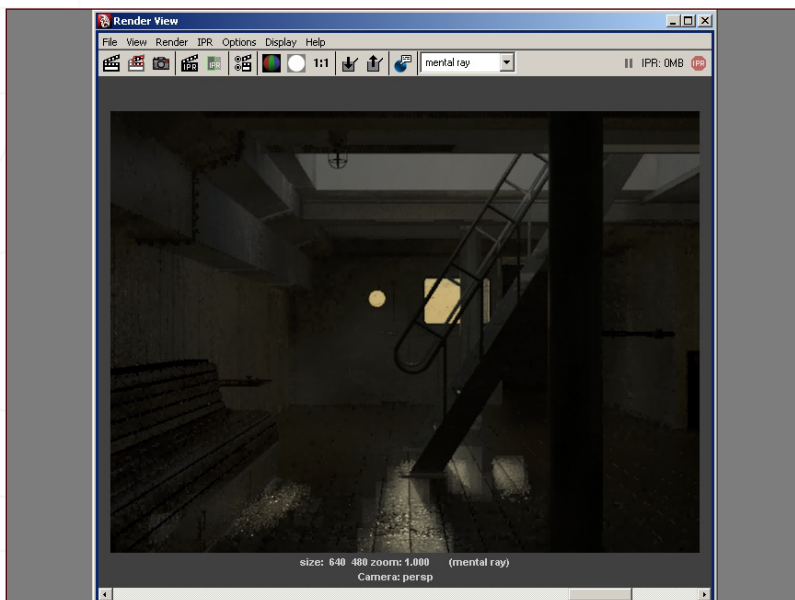
We are selecting the miDefaultOptions node (for example by typing "select miDefaultOptions" in the MEL command line) (Fig10). This node is basically responsible for the export of all the settings to Mental Ray. The regular render globals are practically a more user friendly "front-end" to the miDefaultOptions. There's also some stuff in the mentalrayGlobals node, but this does not affect us right now. As you can see, the FG Diffuse Bounces attribute is actually exposed; we set it to our desired depth, which is 2 for now.

It looks better (Fig11), but still appears to be seriously under exposed. There are several ways to adjust the general exposure level in Mental Ray for Maya, but let's choose the easiest one: raising the Gain attribute of our mia_exposure_simple...
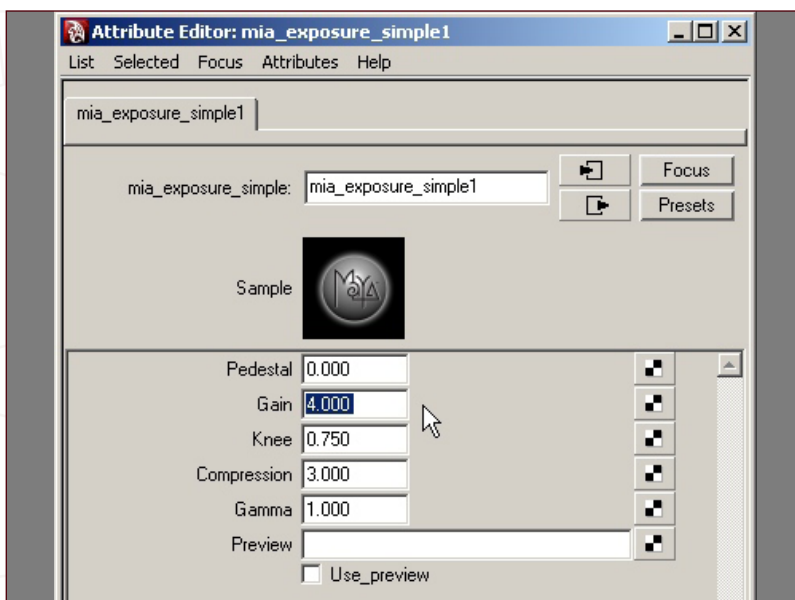
You can navigate to the mia_exposure_simple either by selecting your camera (to which it is connected), or by opening the hypershade and selecting it from the Utilities tab. I gave it a serious punch and boosted the Gain up to 4.0 (Fig12).
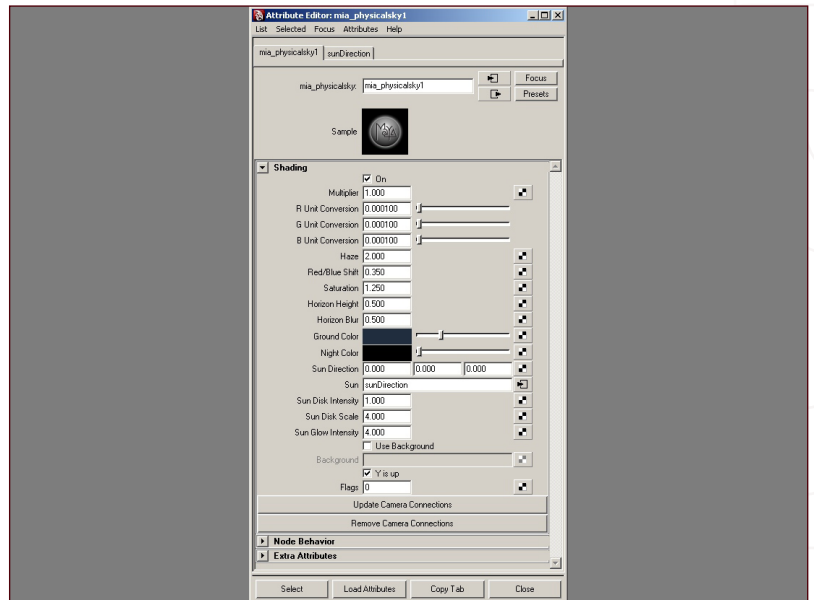
Now it's much better from an exposure point of view (Fig. 13), but it looks very cold and not very twilight-ish. You might want to experiment with the sun's direction, but if we overdo this then we will lose the nice light which is playing on the floor. I therefore decided to solve the problem using the mia_physicalsky - the environment shader which is responsible for pretty much the entire lighting situation.
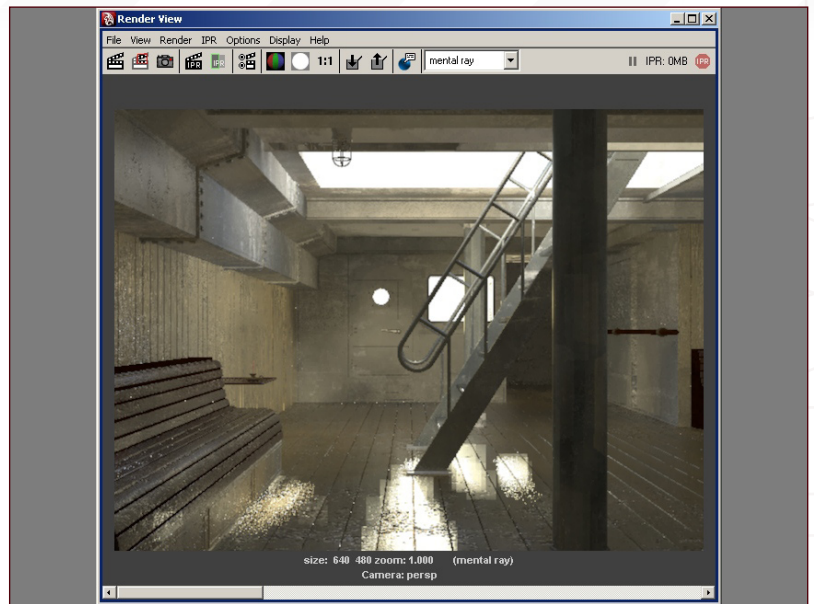
I upped the Haze parameter to 2.0, which gives us a nice "equalization" of direct light coming from the sun, and the light intensity of the sky (Fig14). At lower haziness, the sunlight would be too dominant for our twilight atmosphere. I then shifted the Red/Blue attribute towards reddish, to achieve a warmer look (if I wanted to shift it towards blueish, i.e. doing a white balance towards a cooler temperature, I would have to use a negative value for the Red/Blue Shift). I also slightly increased the Saturation, which is pretty much self explanatory. Now, for an interesting little trick to make the whole lighting situation more sunset-like, whilst still maintaining the direct light on the floor (i.e. the actual light angle), I increased the Horizon Height to 0.5. This not only shifts the horizon line but also makes the whole sky system think that we have a higher horizon, and thus provides a more accentuated sunset situation. Remember this does not have too much of an effect, yet it's still an interesting way to tune the general look. The last two things I changed were the Horizon Blur and the Sun Glow Intensity, however both of these attributes don't have much of a visible effect on the general illumination of our interior.
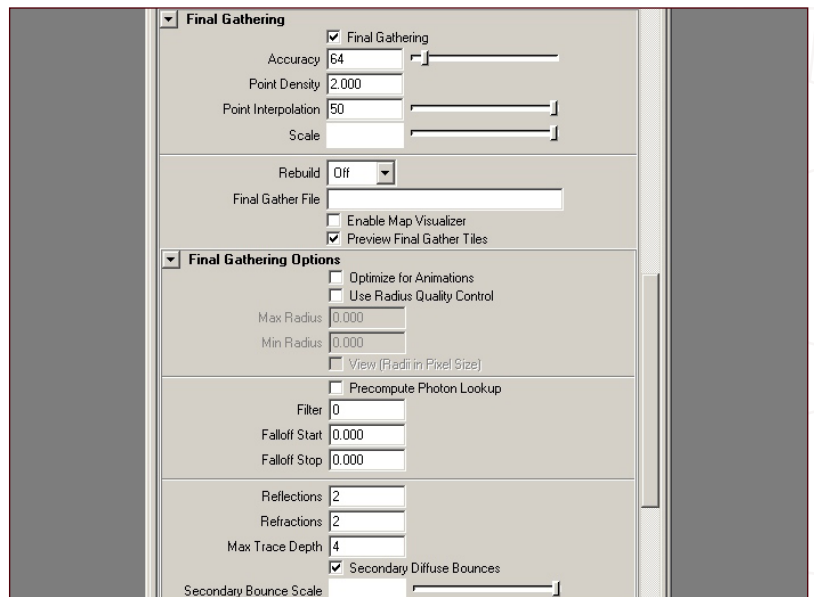
Once we're finished setting up the basic look, we can go about configuring the Render Globals for the final quality (Fig15). First of all, let's increase the Final Gathering quality, since we can reuse the Final Gathering solution later
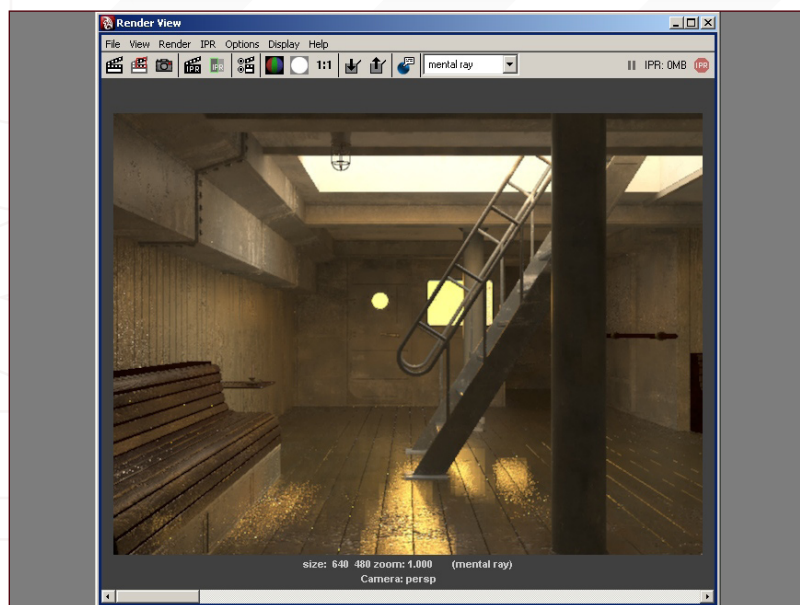
Fig 16

Fig 17

Fig 18

on. In Fig15, you can see the values I used: 64 for Accuracy, which means each final gather point shoots - in a random manner - 64 rays above this point's hemisphere (less accuracy would give us a higher chance of a blotchy Final Gathering solution). To work against the blotchiness we could also increase the Point Interpolation to really high values, like 100+, but this would most likely wash out the whole contrast and detail of our indirect illumination if we don't have a sufficient Point Density value. The Point Density - in conjunction with a reasonable Point Interpolation - is the most responsible part in achieving nicely detailed shadowing, and so we have to find a good correlation between these two. In our case, I found it sufficient to have a Point Density of 2.0 and a Point Interpolation of 50. You might want to try a Density of 1.0 (or even 0.5) if you think the former settings take too long to calculate, but you'll surely notice the lack of detail in the indirect illumination. Note that increasing/decreasing the Interpolation does not affect the Final Gathering calculation time at all. It also does not hurt the actual rendering time too much. The crucial value is the Point Density which adds to the calculation time, as well as the accuracy. Also note that you might be able to comfortably experiment with the Point Interpolation if you freeze the Final Gathering solution (set Rebuild to Freeze).
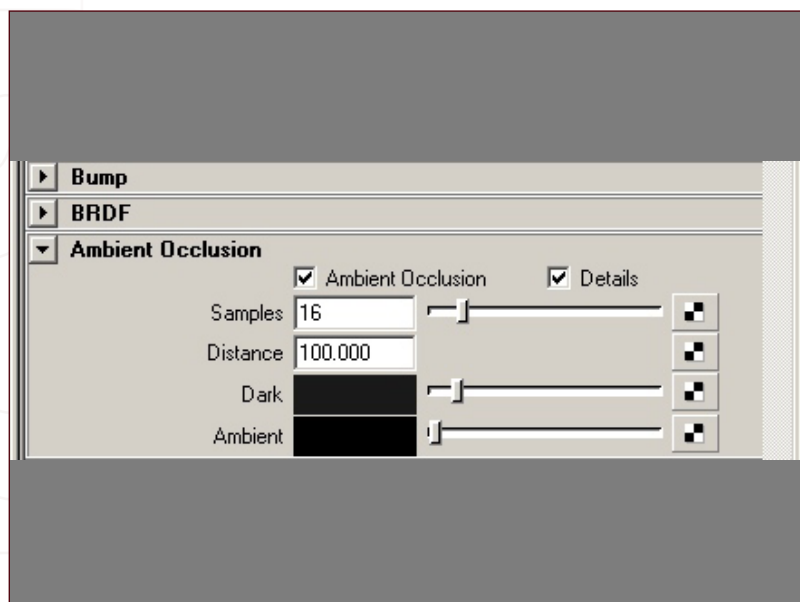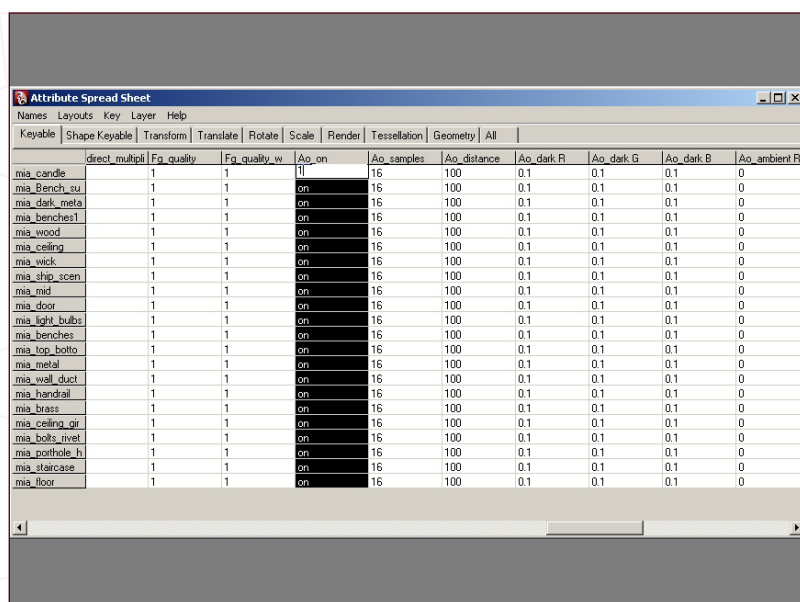
It looks much better now (Fig16), but there are still some areas that seriously lack detail, such as the door region. To reveal these details we could render a simple Ambient Occlusion pass and multiply it over in post production. This would accentuate the problem areas, but at the same time it would add this typically all-present, physically incorrect and visually displeasing ambience. To overcome this, and still use the advantage of Ambient Occlusion, we can use the mia_material's internal Ambient Occlusion mode...

We simply need to enable it in the shader, and set the Detail attribute to On (which it is by default) (Fig17). This special Ambient Occlusion

mode is intended to enhance the problem areas' details, where the Point Density might still not suffice.

To enable the Ambient Occlusion in all shaders, we simply select them all from the hypershade and open the attribute spread sheet, from Window > General Editors > Attribute Spread Sheet (Fig17). There we navigate to the attribute called Ao_on and set it's value to 1 (On).

Although it still might be physically incorrect, it reveals all the details that the Final Gathering was not able to cover (Fig19). Of course, it still looks very coarse, and this is mainly because the general sampling settings are still at extremely low values.

To ensure nice edge antialising, as well as better shadows and glossy sampling, we set the Min/Max Sample Levels to 0/2 and the Contrast values both to 0.05 (Fig20). The filter should be changed, too; I chose Mitchell for a nicely sharp image. I'm also raising the Reflection Gloss Samples (Refl_gloss_samples) up to 8 in the mia_materials. **Note:** this happens on a per shader basis, and we can use the attribute spread sheet again to do this all at once for all shaders.

Last time we rendered to a full 32bit floating point framebuffer. This time, for my final render, I chose to render to a half 16bit floating point framebuffer (Fig21). The half 16bit takes less storage (and bandwith) but still provides the increased dynamic range of floating point buffers. If we want to render the floating point buffer right out of the GUI, without batch rendering, we need to make sure the data written into the buffer actually is floating point; thus the Preview Convert Tiles in the Preview tab of the Render Globals needs to be switched On, and the Preview Tonemap Tiles option needs to be switched Off. This will produce funky colours in your render view preview, but the image written to disk (typically in your project's images\tmp folder) should be alright.
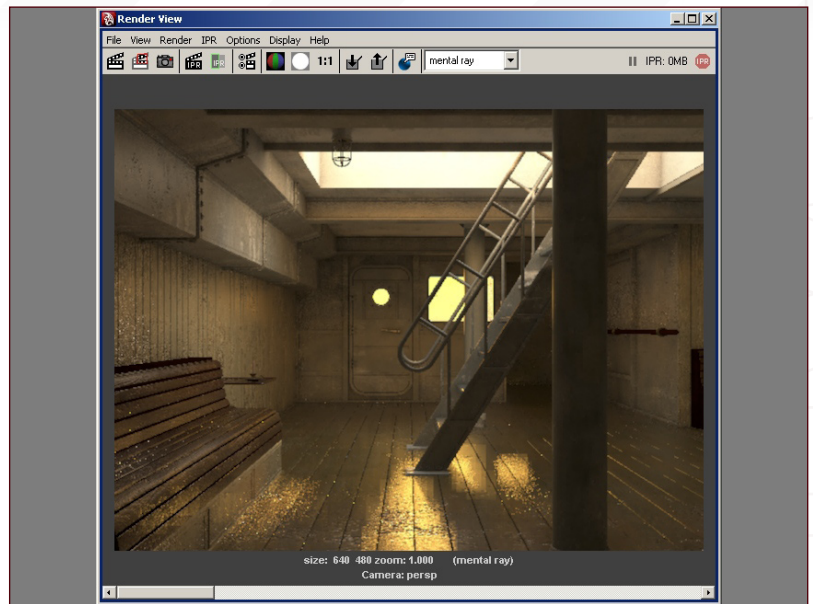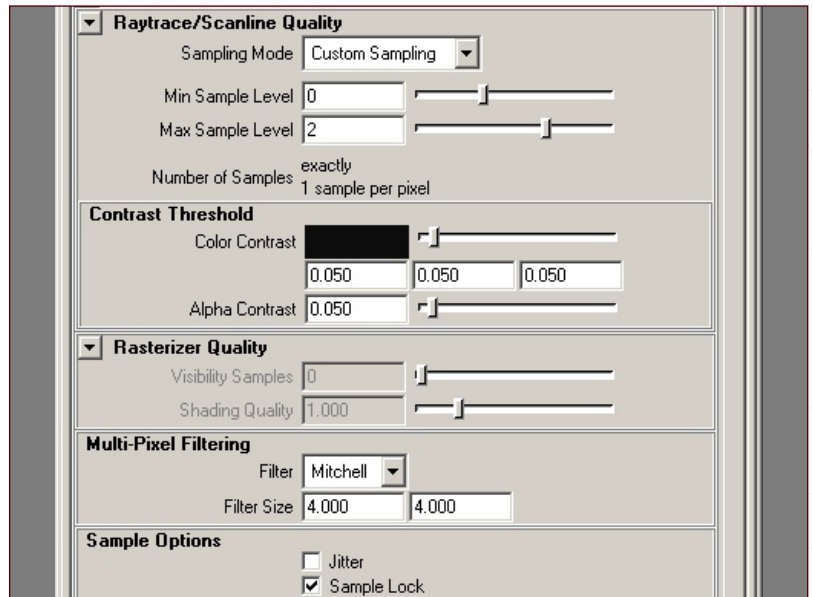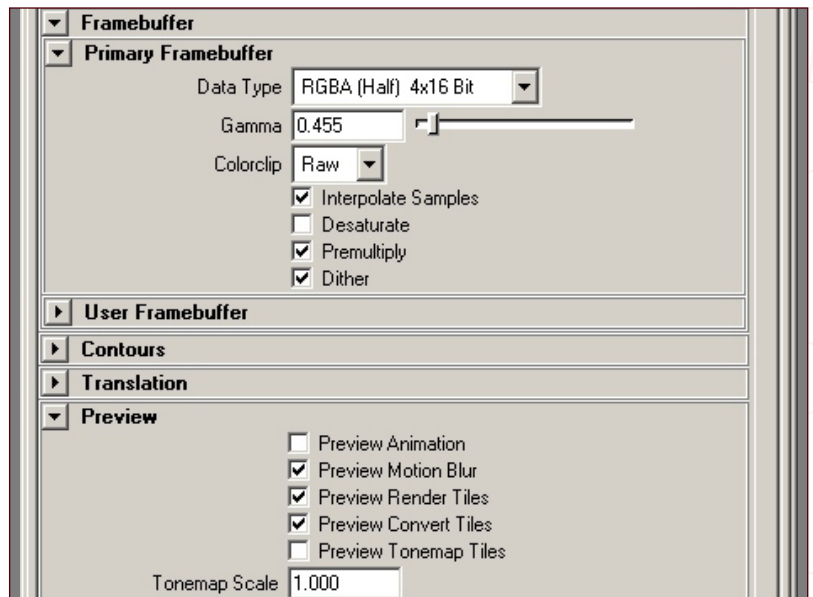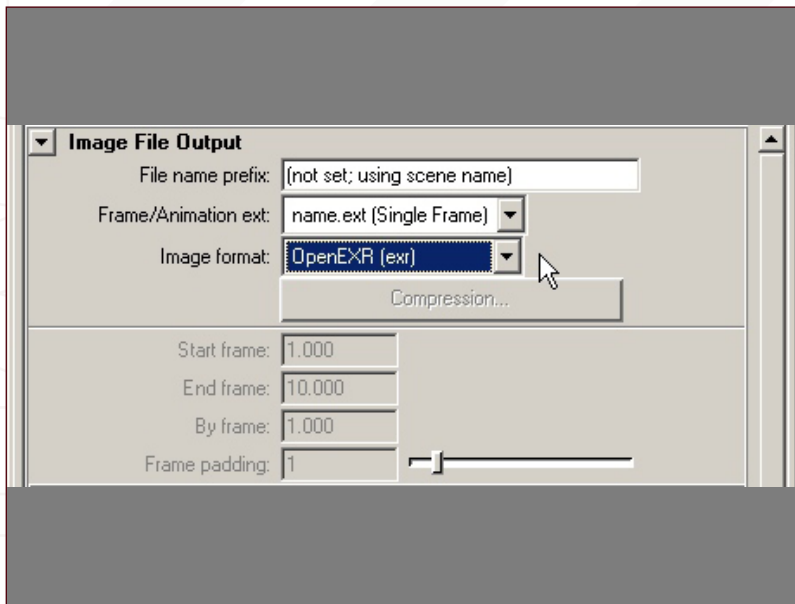
Fig 19

Fig 20

Fig 21

Fig 22

The use of a half 16bit framebuffer forces us to use ILM's OpenEXR format, as it is the only supported format right now for this particular kind of framebuffer (Fig22). That's not actually bad, since OpenEXR is a very good and widely used format, nowadays.

Fig 23

Here's the final rendered, raw image (Fig23) - a good base for the post production work. In my final interpretation I decided to exaggerate the colours that make a dramatic twilight atmosphere. Again, there is no painting happening, only colour enhancement which was done using Adobe Lightroom 1.0 (Fig24).

Fig 24

I hope you have enjoyed following this second part of the series as much as I have enjoyed writing it. Stay tuned for part 3 where we will be covering an extremely interesting - and no less challenging - lighting situation: moonlight.

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3D environment lighting

SOFTIMAGE®|XSI

'3D Environment Lighting' is our new 6-month tutorial series. Over the course of the next six months, this series will be detailing techniques on lighting an environment under a number of different conditions. Each month we will cover a step-by-step guide to setting up lights, aimed at portraying the scene in a specific manner. The various tutorials will be tailored to specific software packages and each will aim to show a comprehensive and effective way of lighting an interior of a ship that includes both natural and artificial light. These will include a sunny afternoon, sunset, moonlight, electric light, candle light, and finally a submerged submarine light. The schedule is as follows:

ENJOY ...

Fig 01

NATURAL EXTERIOR LIGHTING
PART 2 - SUNSET

This month, we'll set up our scene lighting to create a moody sunset. As usual, we'll use Softimage|XSI and Mental Ray to accomplish this task...

1. Open the Ship Cabin_Sunset_Start.scn scene included with this tutorial (download can be found at the end of this tutorial; click on the Free Resources logo) (Fig01).

2. Create a simple Point light and position it as shown in Fig02, just above the opening in the ceiling. This Omni will simulate the light entering from the ceiling. It is not our key-light, so its intensity will be quite low.

Fig 02

3. Select the Point light that you just created and hit the Enter key to open up its property page (Fig03). Set its Intensity to 0,5 and its colour to R=255 G=170 B=129. Enable the Shadows and set the Umbra value to 0. Also, enable Light Falloff, set Mode to Use Light Exponent, and set the Start Falloff and End Falloff values to 1 and 5, respectively.
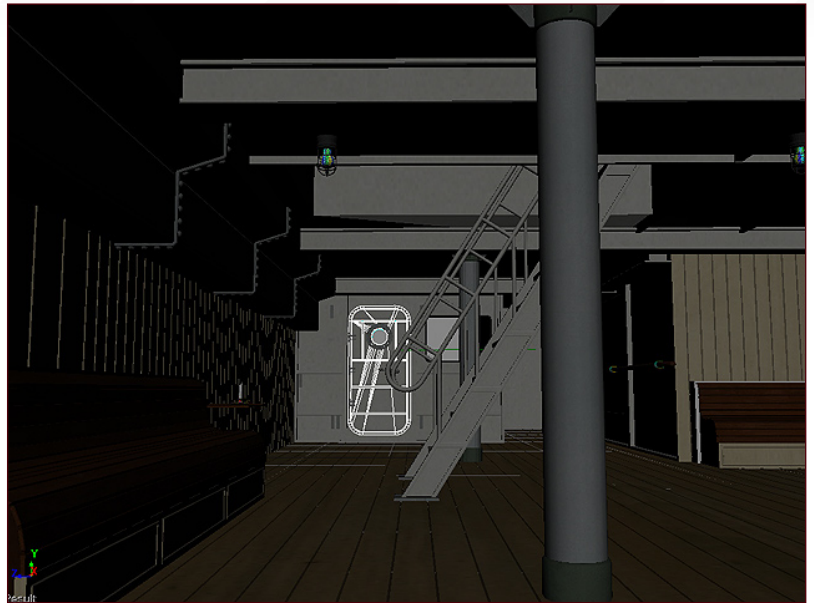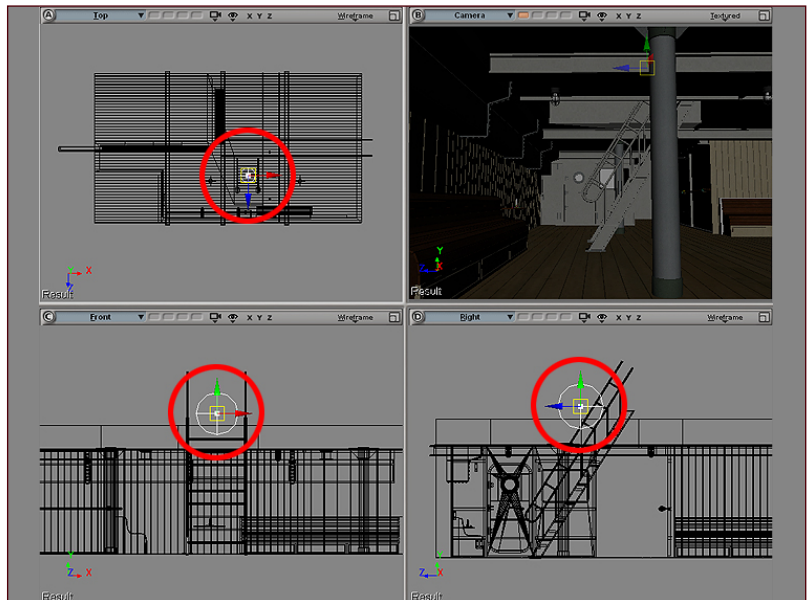
Fig 03
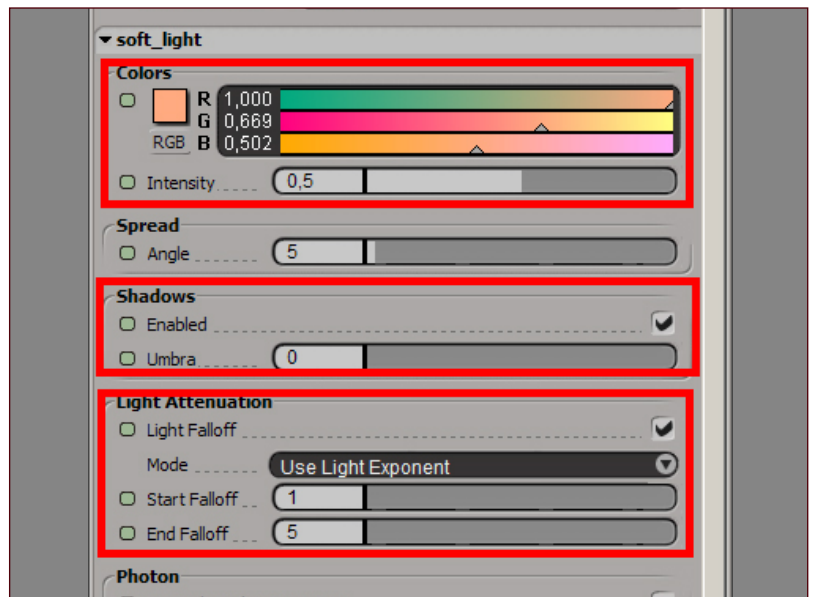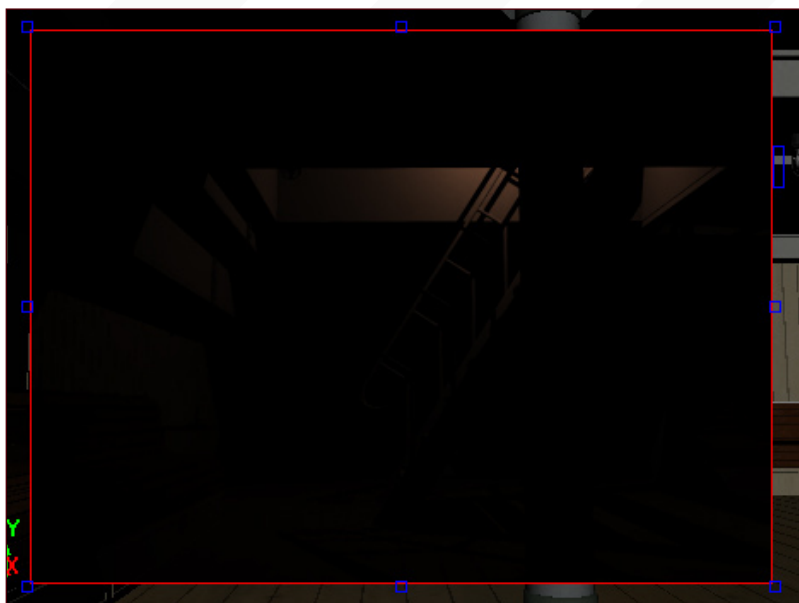
Fig 04

4. Do a quick Region Render to see what's happening (Fig04). We have just a small amount of light entering from the ceiling.
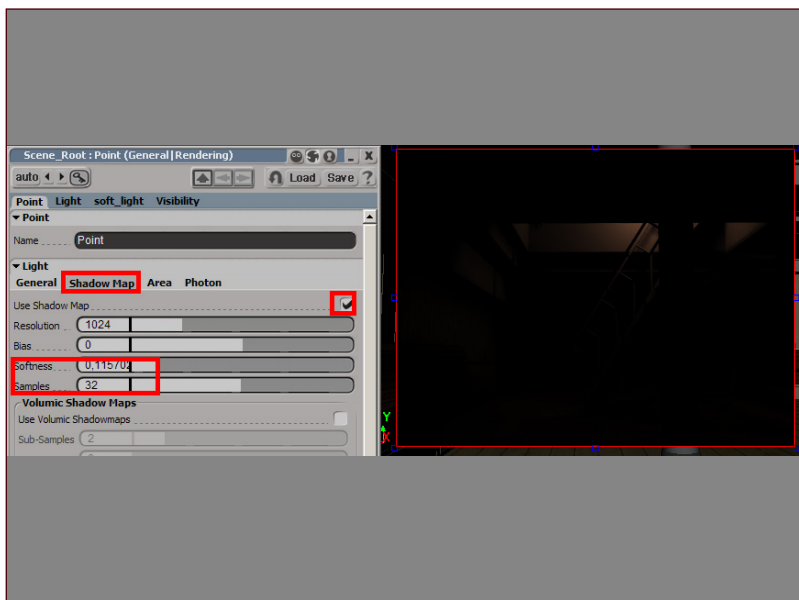
Fig 05

5. Now go back to the Point light's property page, switch to the Shadow Map tab and enable Use Shadow Map. Click on Use Shadow Map under Region. Set the Softness value to around 0,115, and the Samples value to 32 (Fig05). If you render the scene again, you will notice that the shadows are now softer and more diffused.
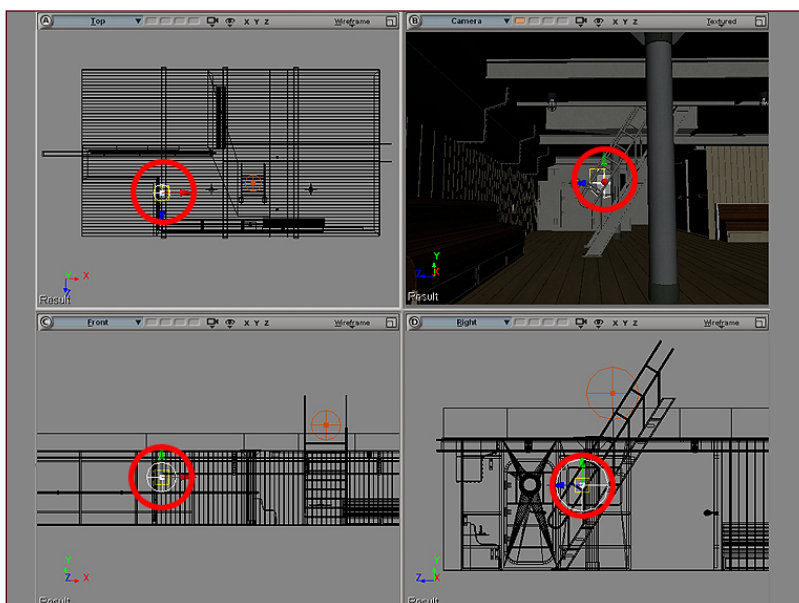

Fig 06

6. Now create another Point light. Position this new light as shown in Fig06, on the back wall area close to the windows. This Point light will be our main light, since it will simulate the sun. Its intensity will be greater than the other light, and together with the shadows it will give our scene the mood we desire (Fig06).

7. Open the property page for the new Point light and set its Intensity to 1,2. Set its colour to R=255 G=180 B=120. Enable Shadows and set the Umbra value to 0. Now enable Light Falloff, keep the Mode on Use Light Exponent, and set the Start/End Falloff values to 9 and 10 (Fig07).

Fig 07
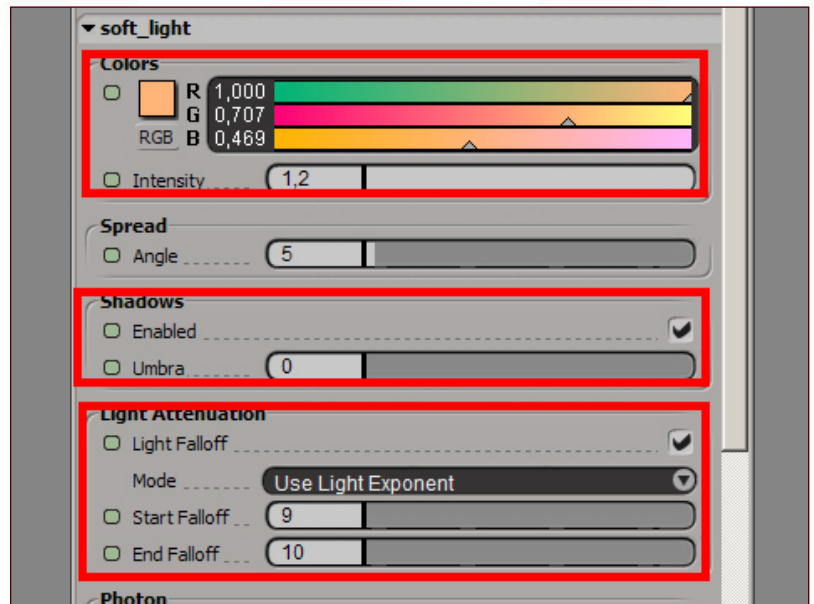
8. Now make another render-region test (Fig08). We now have some light in the back of the room, as well (Fig08).

Fig 08

9. Go back to the light property page, switch to the Area tab and enable Area Light. Change the Geometry to Sphere and raise the U/V Samples values to 10/10. Also decrease the three X, Y and Z values of Scaling to 0,5 (Fig09).

Fig 09
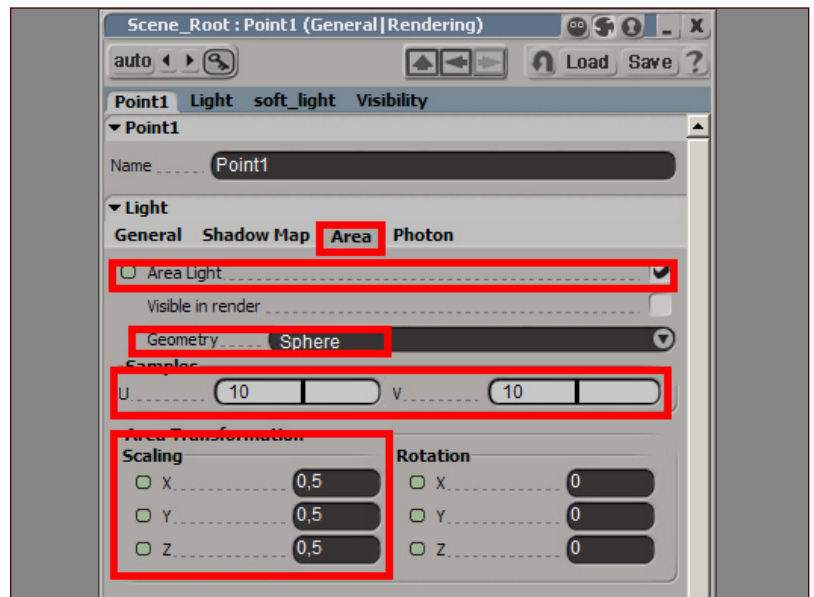
Fig 10

10. Render the scene again (Fig10). Now we have soft area shadows all over the room, which will help us to create the mood for our final render (Fig10).
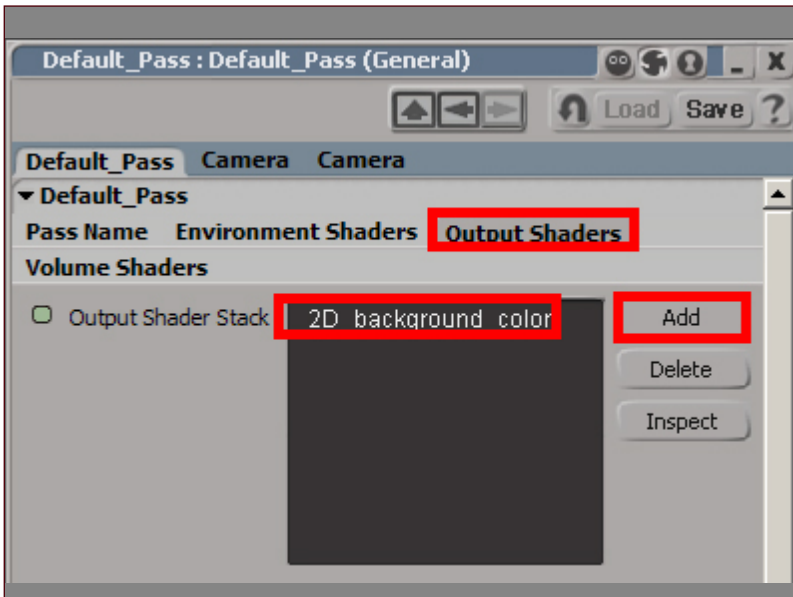
Fig 11

11. Now we need to change the background colour to something more appropriate. Go to the Render menu and select Pass/Edit Current Pass. Switch to the Output Shaders tab, click on the Add button, and pick the 2D_Background_Color node (Fig11).
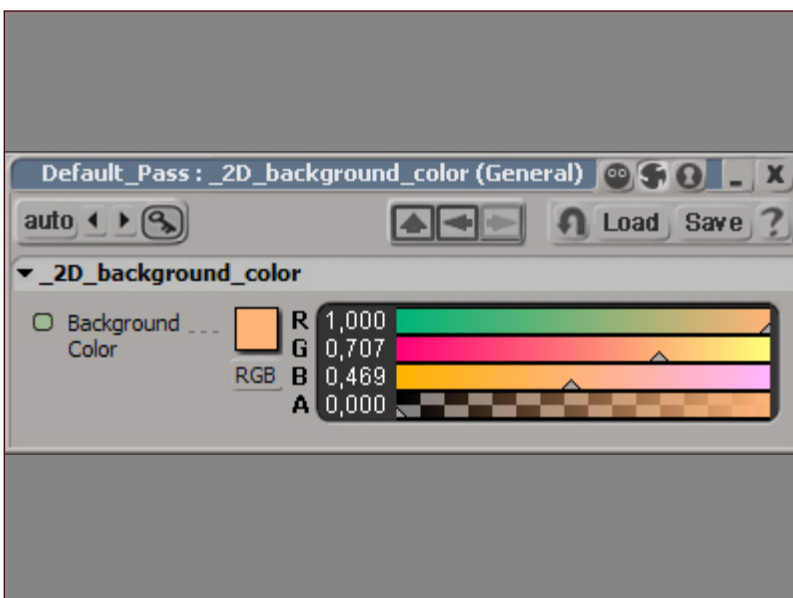
Fig 12

12. With the 2D_Background_Color node still selected, click on the Inspect button and change the Background Color to R=120 G=180 B=120 (Fig12).

13. Render the scene again (Fig13). Notice how the colour outside the windows has changed.

Fig 13

14. Now we need some more light spread throughout the room, so go to the Rendering options page and switch to the Final Gathering tab. Enable Final Gathering and Preview Finalgathering. Use the Automatic Compute button to automatically get fast feedback for the Min./Max. Radius values for your scene. Raise the Bounces value to 20 and change the Multiplier colour to R=120 G=180 B=120 (Fig14).

Fig 14
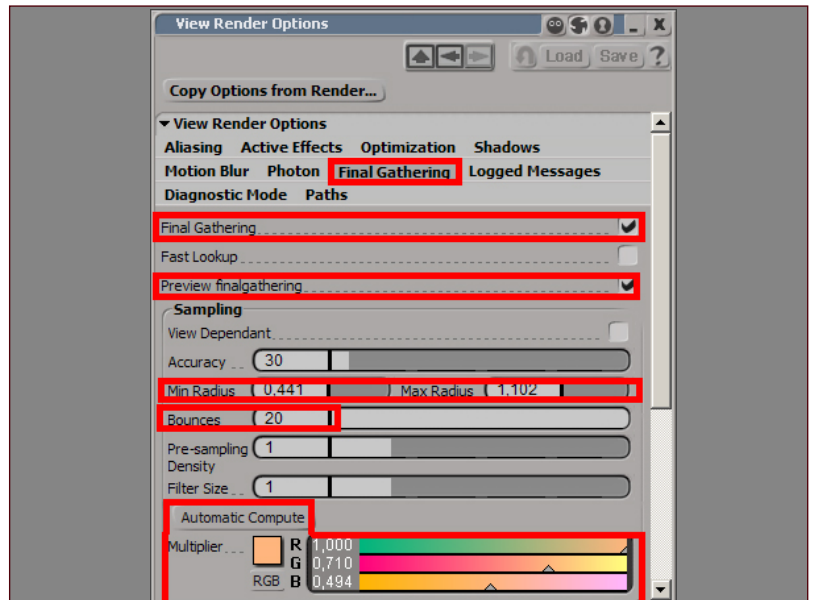
15. Render the scene again (Fig15). Now there's much more light than before, so we can start taking care of the final render...

Fig 15
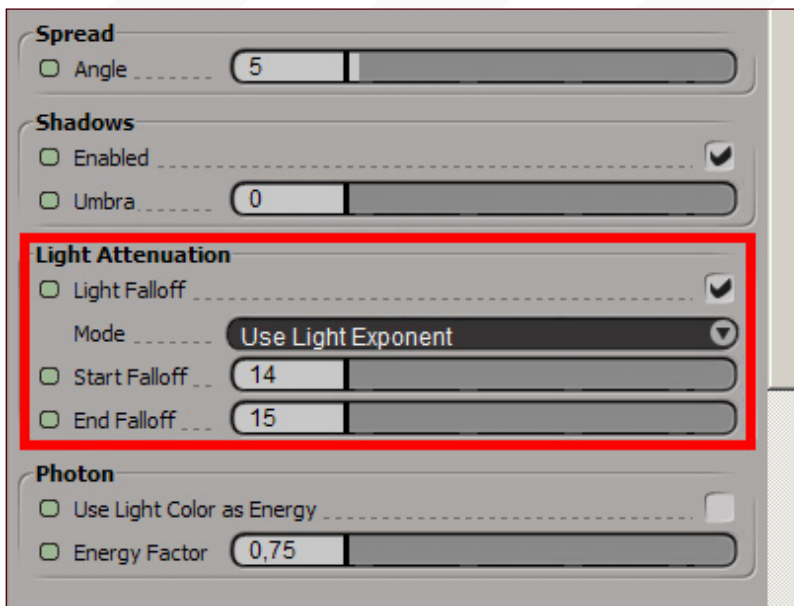
Fig 16

16. Open the main Point light's property page, and in the Light Attenuation section raise the Start Falloff value to 14 and the End Falloff value to 15 (Fig16).

Fig 17

17. Render the scene again (Fig17).
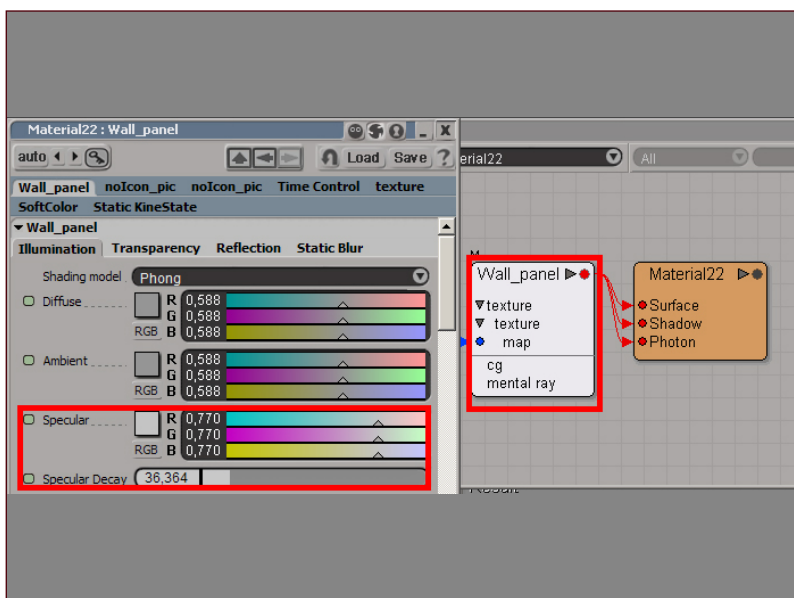
Fig 18

18. The Specular value for the walls and floor materials was increased to achieve a better sensation of light spreading all over the room (Fig18).

19. Render the scene again and change the Specular value until you are happy with the in which the materials behave with the lights (Fig19).

Fig 19
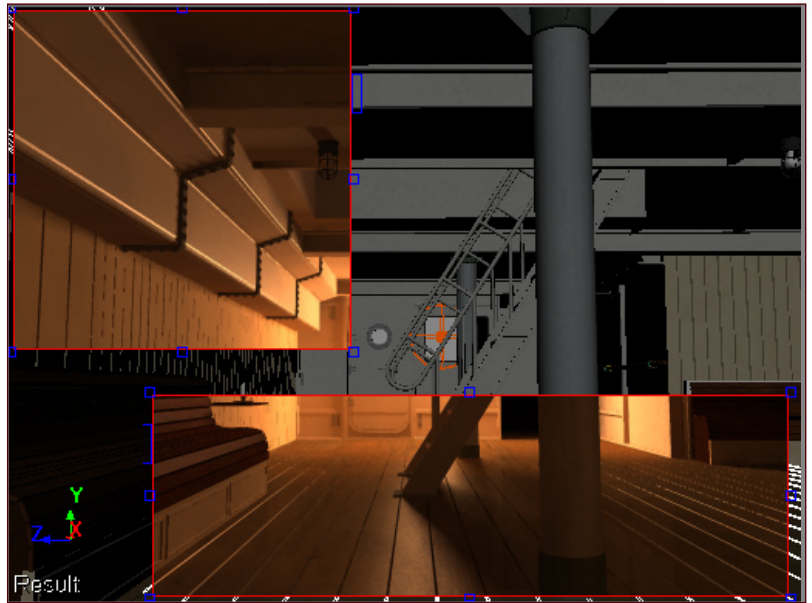
20. Open the Render > Render Options menu and click on the Copy Options of the "Region..." button. This will apply the same settings that we used with the Region render to the actual Render options. In the Output tab, make sure that Write Image to Disk is checked; insert a name for your rendered picture in the Image Filename text box. Pick the Image Format you want, and switch to the Aliasing tab. Set the Min./Max. Level to -2/1 and the Threshold values to 0,021. Change the Filtering type to Mitchell and hit the Render Current Pass button (Fig20).

Fig 20
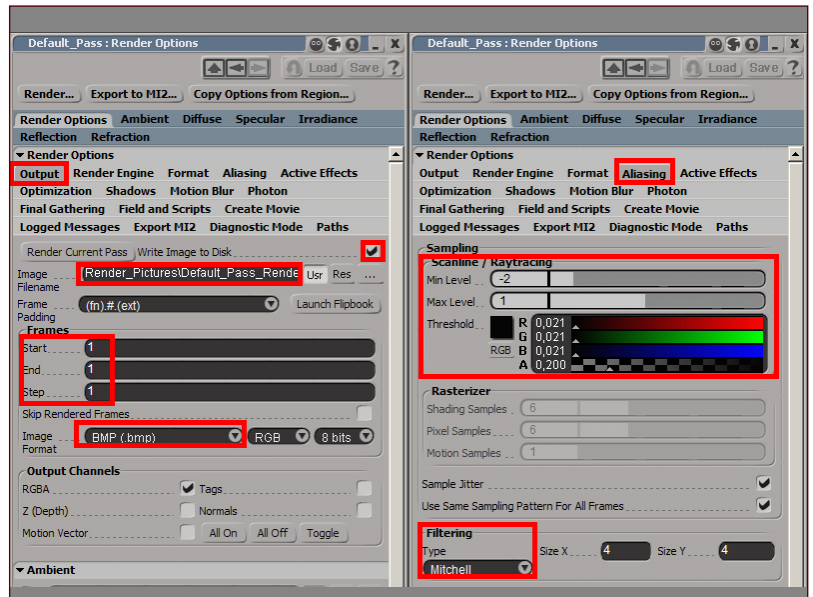
21. Now that we have our final rendered picture, we need an Ambient Occlusion pass to composite them together in Photoshop. Open the Ship Cabin_AO.scn scene. A new Phong material was created and assigned to every object in the scene. An XSIAmbientOcclusion node was put into the Material's Surface node. (You can see the settings for the AO on the left of Fig21.) Render the AO Pass and save it.
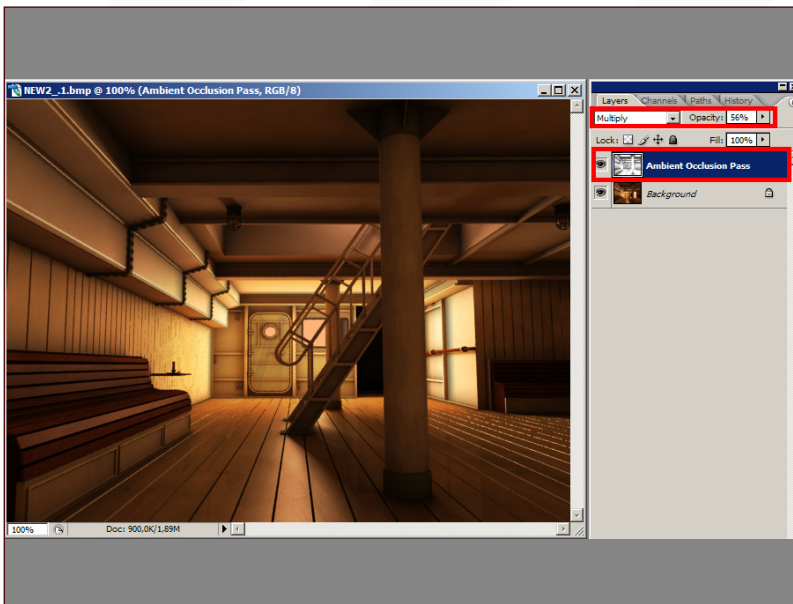
Fig 21
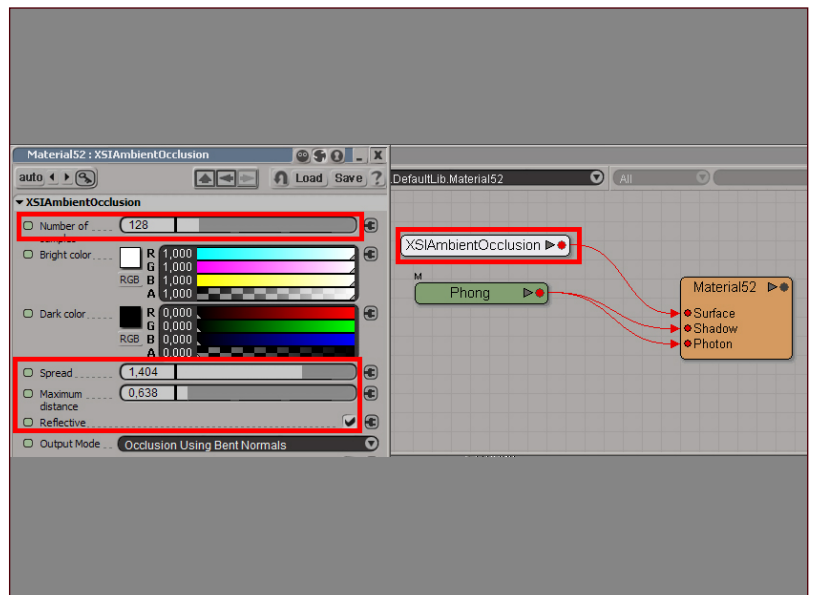
Fig 22

22. Start up Photoshop and import both the original render and the Ambient Occlusion pass. Switch to the Ambient Occlusion image. Select All (Ctrl + A) and Copy (Ctrl + C). Switch to the Original render and Paste the AO pass above it (Ctrl + V) (Fig22). Change the blending mode for the AO pass to Multiply and set the Opacity value to around 56%.
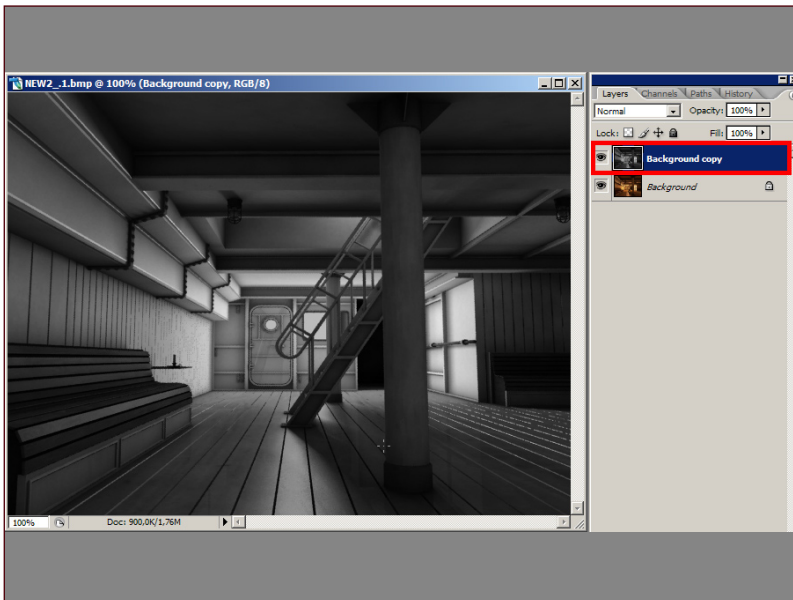

Fig 23

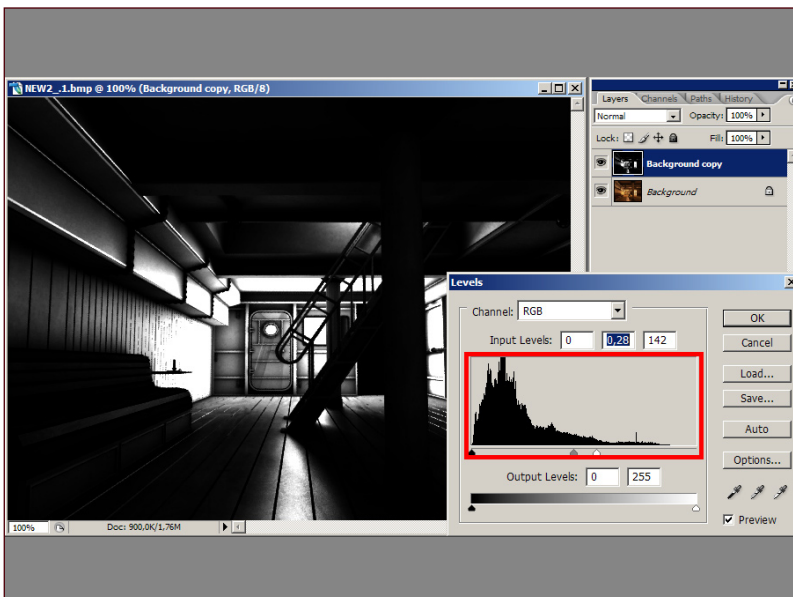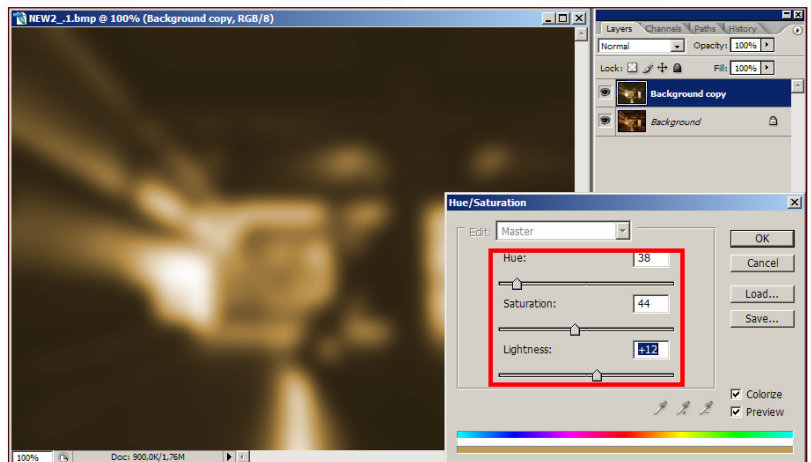23. Merge the two layers together (Flatten) and create a copy of the new Background layer (Fig23).

Fig 24

24. Use the Levels tool to expose the areas with more light (Fig24).

25. Apply a fair amount of Gaussian Blur to the top layer and change its Hue & Saturation as shown in Fig25.
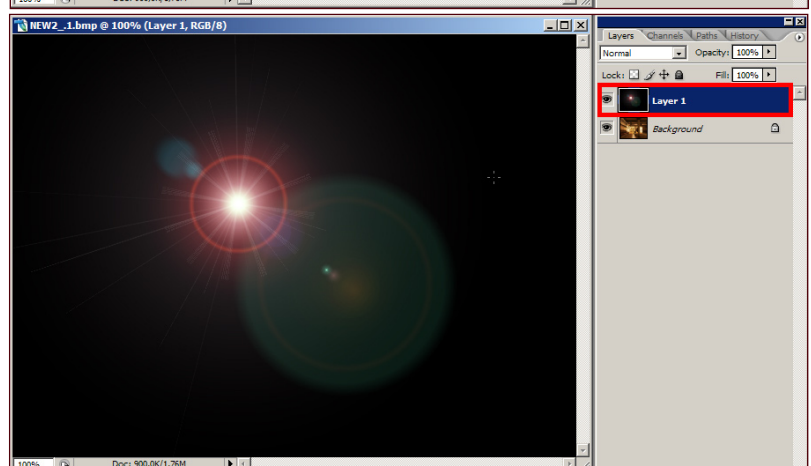

Fig 25

26. Change the top layer's blending mode to Linear Dodge; set its Opacity value to 44% and the Fill value to 85% (Fig26).

Fig 26
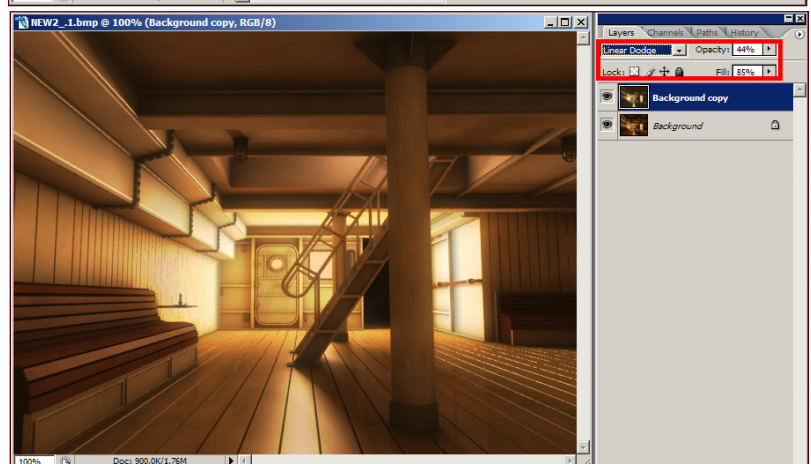
27. Flatten the two layers together. Create a new, fully black layer and apply a Render/Lens Flare filter to it (Fig27).

Fig 27

28. Change the blending mode to Linear Dodge and set the Opacity value to 73% (Fig28).

Fig 28
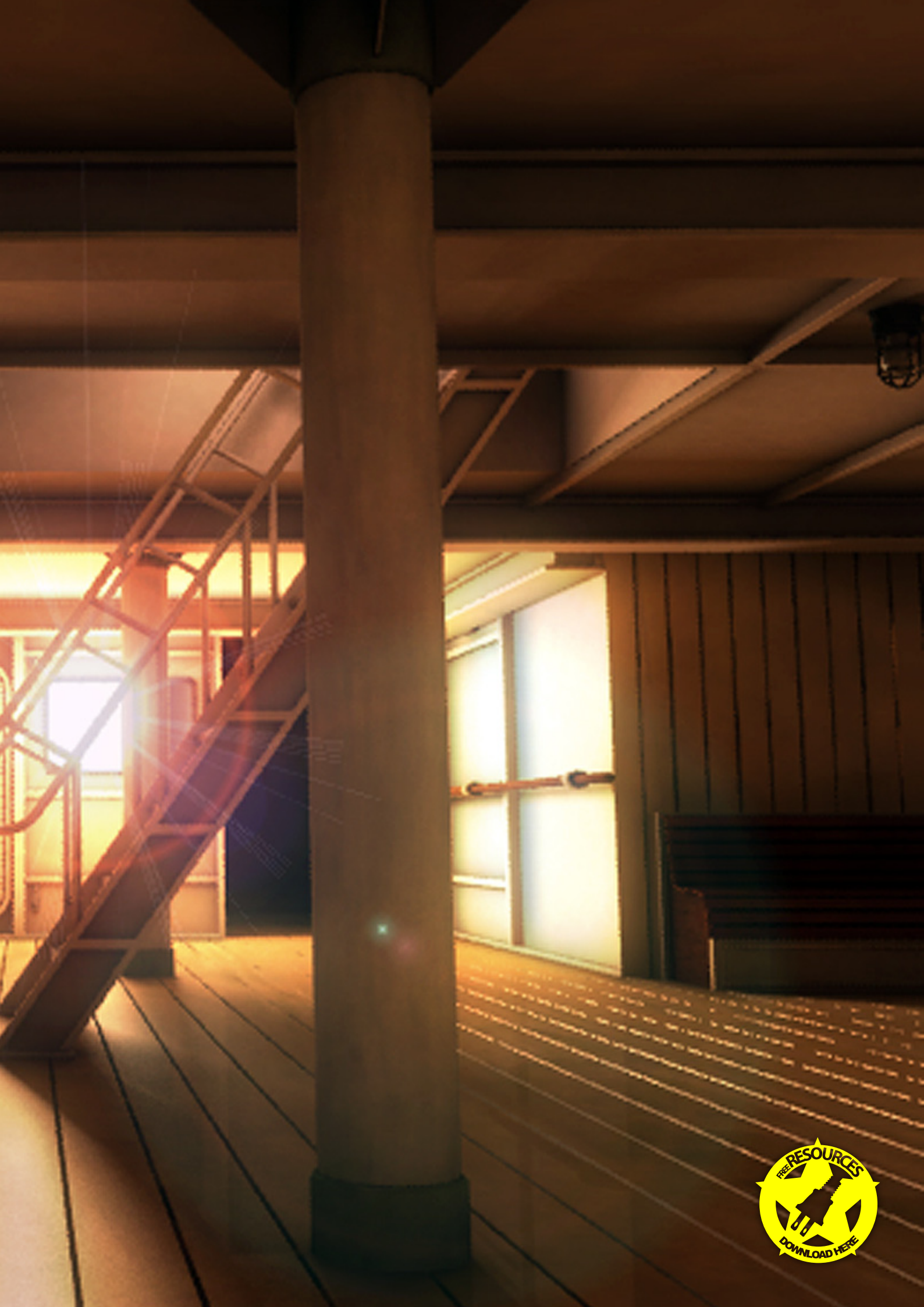
Next Month

in 3dcreative